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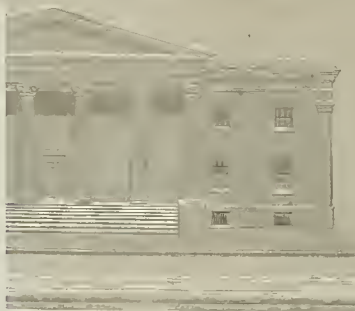
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GOLD AND SILVER COINS

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A MANUAL
OF
GOLD AND SILVER COINS
OF ALL NATIONS,
STRUCK WITHIN THE PAST CENTURY.

SHOWING THEIR HISTORY, AND LEGAL BASIS, AND THEIR ACTUAL WEIGHT, FINENESS, AND
VALUE, CHIEFLY FROM ORIGINAL AND RECENT ASSAYS.

WITH WHICH ARE INCORPORATED

TREATISES ON BULLION AND PLATE, COUNTERFEIT COINS, SPECIFIC GRAVITY OF PRECIOUS METALS, ETC.
WITH RECENT STATISTICS OF THE PRODUCTION AND COINAGE OF GOLD AND SILVER IN
THE WORLD, AND SUNDRY USEFUL TABLES.

BY

JACOB R. ECKFELDT, AND WILLIAM E. DU BOIS,
ASSAYERS OF THE MINT OF THE UNITED STATES.

ILLUSTRATED BY NUMEROUS ENGRAVINGS OF COINS,
EXECUTED BY THE MEDAL-RULING MACHINE, AND UNDER THE DIRECTION, OF

JOSEPH SAXTON,
OF THE UNITED STATES MINT.

PHILADELPHIA:
PUBLISHED AT THE ASSAY OFFICE OF THE MINT.

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TO

ROBERT M. PATTERSON, M.D.,

DIRECTOR OF THE MINTS OF THE UNITED STATES, VICE PRESIDENT OF THE AMERICAN
PHILOSOPHICAL SOCIETY, &c. &c.

Dear Sir,

In the publication of the ensuing work, the authors find a proper occasion of testifying their sense of your personal and official merit, by inscribing upon it your name. Be pleased to accept this dedication, with the warm regards of

Your faithful servants,

JACOB R. ECKFELDT,
Assayer.

WILLIAM E. DU BOIS,
Assistant Assayer.



INTRODUCTION.

A NEW book of coins seems to be required by the commercial world about once in twenty years. In 1806, the "Traité des Monnaies" of M. Bonneville appeared, and perfected the science of real moneys to that date. When the second and improved edition of Dr. Kelly's "Universal Cambist" was published (in 1821,) although based in part upon the great standard just referred to, it had numerous alterations to supply ; new nations had sprung into existence, old ones had been blotted out, the whole retinue of Napoleonic sovereignties was transformed, and the world had another currency. So we, from this year of 1842, looking back upon the time which has elapsed since the Cambist appeared, perceive even greater changes in the constitution of nations, and the order of their coinage. This last monetary cycle has witnessed the origin of the kingdoms of Belgium and Greece in the old world, and in the new, the Empire of Brazil, and the whole catalogue of Spanish American republics, claiming a prominent place by the abundance of their gold and silver. Besides, there have been many and essential changes in the moneys of other countries ; insomuch that of the money systems of the sixty nations treated of in our second chapter, only eighteen remain as they are found in Kelly's work, and nine as in Bonneville's. Again, even if so great alterations had not ensued in the *laws* of coinage, experience proves that a watch must be kept upon the *practice*, and mint-assayers are continually testing the coins of foreign countries, choosing rather to trust to the cupel and balance, than to codes and allowances. From time to time, it devolves upon some of them to embody their results in a manual for public use. Since the opening of the nineteenth century, France has given the first standard of this sort, England has supplied the second, and a third is now offered from the United States.

In this undertaking, singular facilities have been afforded us. We have operated on nearly all the kinds of coin current in the world for a hundred years past, and in

the most important instances, upon considerable masses of them, and by frequent repetitions; so that a fair average has been attained. Out of 760 assays of coin stated in the second chapter, six-sevenths are original; the remainder, consisting chiefly of the older European and Oriental moneys, have been taken from Bonneville and Kelly, with a few from Becher. We have also had the advantage of an extensive correspondence, opened and conducted at our request, by the present Director of the Mint, with foreign ministers and consuls of the United States. Nor would we forget the encouragement extended by the entire corps of our fellow-officers, to whose courtesy and worth it is a pleasure to bear testimony. Still, the labour of the enterprise has been such as to take from us, during three years past, most of the leisure which the daily and often urgent routine of official business allows.

But we have aimed to do something more than to satisfy those who deal or take an interest in coins. The whole subject of *Bullion* demanded a methodical treatise; this has been attempted in the third chapter, and it is hoped will be found useful to those engaged in mining, or in trading with mining countries. In the fourth chapter, we have ventured to handle *Counterfeit Coins*. M. Chaudet, in his recent work "L'Art de l'Essayeur," expresses his surprise that this subject has not found a place in the works of assayers, and makes a valuable contribution to it, in the chapter "De l'examen des fausses monnaies françaises." We have taken advantage of some of his suggestions, but not without laying the ground anew, and submitting the whole matter to a practical and patient investigation. Our fifth chapter contains an original and extensive series of results in the specific gravity of the precious metals, important alike to men of science, and men of business. In the sixth chapter, we have sought to interest not only artists, but all who have a taste for engravings, by a brief history of the new process of machine engraving, and by numerous specimens of what it is able to achieve. The plates are fully described, and an attempt is made to acquaint ordinary readers with an easy method of distinguishing Oriental coins. In the appendix are statistics of various kinds relating to coinage, and tables of daily use to dealers in money, most of which are nowhere else accessible in print.

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A MANUAL OF COINS AND BULLION.

CHAPTER I.

GENERAL PRINCIPLES OF COINAGE.

IT has been truly remarked, that the citizens of any country have commonly very little idea of the composition of their own coins. Among the many respectable and educated persons who visit our Mint, to witness its operations, not a few learn, for the first time, what is the difference between *fine* and *standard* gold or silver; what are the reasons for mixing the base with the precious metals, and in what proportion this mixture is made. And in general, there is a want of information in regard to these metals, especially in the shape of coin, which, considering how incessantly they are passing from hand to hand, how earnestly sought after, and how diligently amassed, is a matter of just surprise.

Such being the fact, it will be admissible, in the present work, to open with some of the *general principles of coinage*, as they may be gathered from the concurrent practice of most countries.

We shall therefore offer a few propositions and facts, under the following four heads of inquiry:

- I. *Of what coins are made.*
- II. *Of the shape of coins; and their manufacture.*
- III. *Of the impressions on coins.*
- IV. *Of the power of coining; to whom entrusted.*

I. OF WHAT COINS ARE MADE.

It is an interesting inquiry to ascertain how, among all the products of nature, the METALS came to be singled out, as the proper material for money. The reasons, whatever they are, must be of universal application; since the case is so, not in a few countries only, but in every part of the world, where mankind has been reclaimed

from savage life. But this is a research of Political Economy; and it has been ably prosecuted, in many treatises on that branch of science. We borrow from them the definition of money, and the substance of which it should be made.

“Money is a standard measure, by which the values of all things are regulated and ascertained; and is *itself*, at the same time, the value or equivalent for which goods are delivered.” This is a standing definition, given by all authors, from Aristotle down to the present time.*

It is equally well settled, that this standard of measure should be a scarce and valuable substance; not necessarily bulky; capable of being divided, without impairing its value; of sustaining no injury from the atmosphere, from much handling, from fire, water, or any of the ordinary exposures and accidents;—or, if thus injured, easily restored again; that it should be not unpleasant to the sight and the touch; and that it should be capable of receiving some distinctive and permanent impression, by which to be recognised at sight. These various requisites point to *the metals* as the only proper substance.

THE METALS USED.

There are thirty-five metals known at this day. Of these, seven, viz: *gold, silver, copper, tin, iron, lead, and mercury*, have been known from all antiquity. Fourteen were discovered from the fifteenth century to the commencement of the present: among which are *antimony, bismuth, nickel, platinum, and zinc*. The remaining fourteen have come to light since the year 1802: such are *palladium, iridium, rhodium, &c.*†

Of all these, the greater part are entirely unfit for coins. Many of them, such as iron, lead, zinc, and tin, are too cheap; others, like antimony, bismuth, &c. are too brittle, and cannot be wrought.

Again, only a few of them are actually wanted. Such a variety as six or eight would create confusion. The common consent of men has pitched upon *three*, as the proper number; one, highly precious, for large transactions; another, much less so, for ordinary purchases, and a third, still lower in value, to supply the smallest dealings.

The three metals thus every where selected, are *gold, silver, and copper*.‡ They are

* Treatise of the Earl of Liverpool on the Coins of the Realm, p. 8; Lond. 1805.—Prof. Vethake employs a simpler expression:—“Money is that commodity which is most frequently exchanged for every other.”—Political Economy, p. 23; Philadelphia, 1838.

† Chaudet’s *Art de l’Essayeur*, ch. xviii; Paris, 1835.

‡ It is well established, however, that there can be but *one* uniform measure of value. For example; gold was formerly worth eleven or twelve times as much as silver; at present, it is fifteen or sixteen times; which fluctuation at once gives rise to a *gold* and a *silver* valuation, or two standards. Such changes in the relative value are usually very gradual; still, the monetary laws of a country cannot promptly follow them, and therefore one of the metals is

believed to have been the earliest metals discovered; and a beneficent Providence has certainly endowed them with properties which peculiarly fit them for a circulating medium, an end so important to the happiness and progress of society.

The requisite qualities already mentioned, they possess in an eminent degree. But a few particulars may be added.

GOLD is found in nature usually mixed with other metals, such as silver, tin, &c., besides being involved in earthy substances; but from all these it is separable with ease and certainty.

It is very scarce; but the annual produce is remarkably steady, and the quantity in market is not subject to sudden and great fluctuations.

It is remarkable for *weight*; being 19·3 times heavier than water,* and next to platinum, the heaviest known substance.

It is remarkable for *beauty*, being of a peculiar yellow colour, and affording a resplendent polish; for which reasons, added to its rareness, it is much in demand for ornamental purposes, and hence acquires an *intrinsic* value. It is also of great use in some of the fine and common arts of life, which adds to its intrinsic worth.

It is very ductile; easily wrought and stamped; can be melted by an easy process, and does not waste by that operation.

Once more, it may be stated, that when alloyed with other metals, its proportion can be speedily and certainly ascertained.

SILVER possesses many of the above valuable properties, though in a less degree. Its specific gravity is 10·5; its colour is a clear white; as to value, 15½ to 16 ounces of it are, at the present day, equal to one of gold.

COPPER, being comparatively plenty, and easily oxidable, is not considered as a *precious* metal. Nevertheless, experience proves that the smallest bits of silver, capable of receiving a stamp, are not small enough for many of the ordinary dealings; copper, therefore, has been resorted to, as in every respect preferable to the other base metals. Its specific gravity is 8·9; its colour is a deep red; its value is about one-fiftieth that of silver.†

Gold and silver coins pass freely from one country to another; in general, receiving a new form, at the respective national mints. But copper coins, being of low and arbitrary value, never travel beyond their own land.

usually at a premium, against the other. The late Mr. Raguet proposed that gold coins should be of known weights, such as an ounce, half ounce, &c., and suffered to pass at their market value, without affixing any legal price upon them. *Treatise on Banking*, pp. 12 and 211; Phila. 1839.

* In the technical term, which we shall hereafter use, this is its *specific gravity*. For various researches on this interesting subject, see Chapter V.

† A fourth metal, *platinum*, has recently been used for coinage in Russia, where it is produced in considerable quantities. It holds a rank between gold and silver, as to value. The example is not likely to be followed by other countries. See art. *Russia*.

In respect to the use of these three metals for coinage, it is farther to be observed, that *copper* alone is fit to be employed in a pure or unalloyed state. It is true that gold and silver are used, in some countries, in a state of absolute or approximate fineness; for example, the sequins of Tuscany, and the florins of Hanover. But the general usage is quite otherwise, and for good reason. Those metals, in their purity, are soft, easily bent or injured, and exposed to rapid wear. They are greatly benefitted, for coining purposes, by being moderately hardened; and this is best done by the admixture of copper.

To what degree gold and silver should be alloyed, is by no means a settled question. A very prevalent proportion has been one-twelfth; that is, that any given weight of mixed metal, ready for coining, should contain eleven parts pure, and one part alloy. Other proportions, however, are common; such as, one-tenth; one-eighth; one-sixth; one-fourth. But the practice of Spanish America, from whence the world is chiefly supplied with silver, has given a tone to the systems of other countries. For many years, the dollars from that region have been alloyed about one-tenth. These are mostly recoined when they reach other parts of the world; and as it is an advantage to make as little change as possible, in the mixture, and as that mixture falls in so well with the *decimal* proportion, of one part alloy in ten, and effects a proper degree of hardness in the metal, it is gaining favour in many nations, and in the course of time may become a universal law. The silver coins of Spain, Spanish America, and parts of Germany, and both gold and silver of France, Belgium, Rome, the United States, and other countries, are now alloyed at this rate.

Another unsettled question is, as to what the alloy of the gold coins should be. In Spanish America, finding that silver is mixed with the gold in its natural state, they have made *that* the alloying metal, without introducing copper; though the practice is now changing there. On the other hand, Great Britain, France, Germany, and some other countries, are now endeavouring to rid their gold coins of silver entirely, using copper only, as the alloy. These two extremes give rise to a great diversity of colour in gold coins; the doubloons are often sadly pale, and the sovereigns suspiciously red. In the United States, it is thought very desirable to maintain a *gold colour*; which is best attained by using both silver and copper. Our law provides that the alloy should consist of not more than one-half silver; the practice of the Mint is to approach the ratio of one-fourth. That is to say, of any given weight of mixed metal, prepared for coining, there shall be of gold, 900 parts; of silver, 25 parts; of copper, 75 parts; = 1000.

Considering the practice of most countries, the weight of authority is in favour of keeping a small proportion of silver in the gold coins.

A third unsettled question is, whether the silver coins, large and small, of any one country, should all be of the same fineness. In some nations, it has been a long esta-

blished principle to make the small coins of very base alloy, the silver constituting only one-half, one-third, and even one-fourth; which mixtures, as they can properly be called neither silver nor copper, have received the name of *billon*.*

To make this the more intelligible to an American reader, we will suppose that our denominations of silver coin, and their intrinsic value, remain as at present; but that their standards should vary, as follows:

The dollar, at $412\frac{1}{2}$ grains, nine-tenths fine.

The half-dollar, $206\frac{1}{4}$ grains, nine-tenths fine.

The quarter-dollar, $185\frac{3}{4}$ grains, five-tenths fine.

The dime, 124 grains, three-tenths fine.

The half-dime, $92\frac{3}{4}$ grains, two-tenths fine.

Such would be our system, if we took Austria, the German States, Denmark, and some other countries, for our pattern. But why such a diversity of mixtures? For no other reason, than to make the piece more bulky and tangible; thus, at the above rate, our half-dime would be nearly as large as the present quarter-dollar: and one cent, instead of the present large copper piece, would be represented in a coin scarcely smaller than the present half-dime. But these low alloys, although when first issued they have a silvery surface, soon obtain a bad colour by wear, and if very base, can hardly be distinguished from mere copper. They can also be easily imitated. Further, the large amount of copper put in them, is nearly thrown away, since the value of a coin is ascertained by the amount of pure metal in it; and lastly, the silver cannot be recovered from such mixtures, without great expense and loss. For these and other reasons, it is the prevailing practice to make all the coins, large and small, of one fineness.

It should be remarked, that in countries where *billon* is used, the coins made of it are not of full intrinsic value, but are made to yield a profit to the government.

The coins of Turkey and the Barbary Powers, are all made of a low alloy of silver. The reason there is, that as the money is to be forced upon the people at an arbitrary and fictitious value, the less silver that is used the better, provided there is some plausible show of the precious metal. But this policy does not prevail in other Mohammedan countries, as Egypt and Persia, nor in countries farther East.

The series of *gold* coins, in every country, is always maintained at the same fineness.

* This is a French word, and is traced back to the money-dealers of Lombardy and Venice, who, during the bloody strife between the Guelphs and Gibellines in the thirteenth century, escaped to various parts of Europe. The words *bilan*, *agio*, *campiste*, *usance*, &c. now every where familiar, were introduced by the Lombards. *Mongez, Mémoire sur l'Art du Monnoyage*, &c., p. 220.

II. OF THE SHAPE OF COINS AND THEIR MANUFACTURE.

Coins are generally made *flat*, *circular*, and *thin*.

By being *flattened*, they receive better impressions; are conveniently handled, counted, and piled. The exceptions to this rule are, the silver tical of Siam, shaped somewhat like a bullet, and impressed only by a few small marks; and the star pagoda of India, which is a convex lump.

They are also more convenient for being *circular*. Any other shaped edge would retard the process of coining very much; besides, angular pieces would not only be exposed to increased wear, but would themselves wear upon other substances; few would choose to carry them in the pocket. An attempt at the circular form has generally been made, in all ages; but it is since the seventh or eighth century of the Christian era, that a true circle has been attained.* The ancient practice was, to cast the metal into a convex button, and then give it an impression, with great force. From this operation, the edge remained pretty nearly in a circular line, though often with fissures and rough places. The *cobs*, or coins of Spanish America, of about a century ago, were of all manner of shapes, being struck with a hammer, and clipped to their proper weight; leaving ample opportunity for future clipping without detection. Other specimens there are, of a more regular workmanship, in which the angular form has been expressly aimed at; as for instance, the square ducat of Nuremberg; the square rupees of the Mogul empire; the parallelograms of Japan; and the octagonal pieces of Assam.

Coins are also made *thin*. By this we only mean, that they are rather in plates, than in blocks. There is a great variety in the thickness of coins; and this is commonly proportioned to the diameter; a small piece being much thinner than a larger one. But this rule is not universal. The *miscal*, or dollar of Morocco, is one-third less in breadth than the quadruple ducat of Austria, yet is six times as thick.

The purposes for which coins are fabricated, demand that they should be convenient to handle, and to carry about the person; neither too large, nor too small. They must be less than a medal, and larger than a spangle. Yet there is a great diversity of opinion as to what the public will require, or endure, in this respect. The heaviest coin of modern times, is the golden five-moidore piece of Portugal, struck about a century ago, weighing 828 grains, and worth \$32.70. The smallest coin is the Turkish para, of the present sultan; which weighs from $1\frac{1}{2}$ to $2\frac{1}{2}$ grains, contains a small portion of silver, and is one-thirtieth of our cent.

* Pinkerton's Essay on Metals, i. 68.

The following particulars may be observed, of coins of the different metals.

Coins in *gold* generally vary in size from the ducat to the doubloon; which is from $53\frac{1}{2}$ to $416\frac{1}{2}$ grains in weight, and from \$2.26 to \$15.56 in value. The scope of our coinage is from the eagle, or ten dollar piece, of 258 grains, to the quarter-eagle, of $64\frac{1}{2}$ grains.*

As to *silver* coins, our own series well represents the usual scope. A smaller piece than our half-dime ($20\frac{5}{8}$ grains) is seldom used. On the other hand our dollar is near the usual weight and value of the crowns and dollars of other countries, which are found a good size, both for currency at home, and for exportation. Pieces of less value than our half-dollar generally abide, like the copper, in their own country.†

Of *copper* coins, there are in our monetary system, two denominations; the cent, of 168 grains, and the half-cent. The latter is nowhere used, and even the cent is scouted in some parts of the Union, especially at the South and West, where the citizens do not deign to buy any thing under the value of a half-dime, or a Spanish *medio*. But in many other countries, the case is quite different. For example, the *pfennig* (penny) of Saxony, weighs but 24 grains; and the *centime* of Geneva, which must be the smallest bit of copper money in Europe, is 14 grains, or just one-twelfth of our cent.

It would be interesting to compare New Orleans with Geneva, with a view to ascertain what can be the difference in their social condition, when the smallest coin of the one, is sixty times more valuable than the minimum of the other. What can the Genevese buy with a centime, or the Turk with a para? It is a matter of wonder to us in the western world.

On the other hand, the Russian czar supplies his subjects with copper coins, the largest of which, if they were cheap enough, might almost serve the ends of wholesale dealers in that metal. A piece of 1795 weighs 390 grains; about $5\frac{1}{2}$ times as much as our cent. The ten copeck piece of the present emperor, the arbitrary value of which is one-tenth of a rouble, or $7\frac{1}{2}$ cents, weighs 700 grains, equal to the weight of $4\frac{1}{6}$ cents.

In this connexion it is curious to notice the very great difference in value, between the *nominal* coins of countries. Every national system of currency has its integer, unit, or starting-point. In the United States, this is the dollar; in Great Britain, it is the sovereign, or pound sterling. Observe then the disparity, even in contiguous regions. The nominal coin of Britain, the highest in the world, is equivalent to \$4.84 in our money. That of France (just over the channel) is the franc, worth $18\frac{3}{4}$ cents. In Holland, and a large part of Germany, it is the florin, about 40 cents; in Austria,

* The proposition made some years since, to coin *gold dollars*, was decided to be injudicious, and therefore abandoned.

† The measurements of our coins, both singly and in large packages, will be detailed hereafter.

another florin, worth $48\frac{1}{2}$ cents; in Turkey, the piastre, "of no particular value," but at present about 4 cents. This disparity shows itself in the display of figures, and has its effect upon the eye and the mind, when we read of salaries or subsidies. If we instance the pay of the governor of the British settlement at Good Hope, which is £6000 per annum, we shall find its magnitude increasing upon us, if it be expressed as a sum of 29,000 dollars, or 156,000 francs, or 726,000 piastres. So the tribute of a pasha, or a loan to the sultan, which, when stated in Turkish money, seems enough to drain the money market, dwindles into a mere annuity, when measured by the British unit.

Considering the ordinary course of business transactions, and the prevalence of the Spanish-American dollar over the world, we of this country may, on the whole, rest satisfied with the dollar as our money unit. It is a good medium between the widely-differing integers of England and France, with whom we have most intercourse.

The reader will now be disposed to inquire, by what process the metals are shaped into coins?—which will lead us to a description, not too minute, of this manufacture.

Under the ancient Roman empire, this was a laborious operation, requiring many artists and workmen. They had first the *Optio*, or Director; then the *Exactores*, or *Nummularii*, Assayers; *Scultores* or *Cælatores*, Engravers of the dies, who were usually Greek artists; *Cenarii*, Refiners; *Fusarii*, or *Flatuarii*, Melters; *Equatores*, Adjusters of weight, and *Signatores*, who certified the same; *Suppostores*, who put the pieces on the die, and *Malleatores*, who struck the blow.* The whole body constituted a corporation in law: and so numerous were they, that on one occasion, under the Emperor Aurelian (A.D. 274) they were excited to a revolt, and killed seven thousand soldiers, before they could be subdued; from which incidental fact it is plausibly inferred that they themselves must have been at least seven thousand strong.†

Their process is briefly thus stated: The metal, when assayed and refined, was cast by the melters in the shape of bullets, in order to assist the high relief; the busts on Roman coin being prominent to a degree not known in modern times. These bullets were then placed between the dies, and received the impression by repeated strokes of the hammer. The edges of the piece, not being confined by a collar, as in our day, were allowed to spread out as they might, and therefore presented an irregular line, approaching to a circle. It would seem that in some cases a large stone was made to drop upon the piece, and so produce the impression.‡

Thus much for ancient minting. It would be interesting to trace the progress of the art, especially in France and England; but we must proceed at once to state the

* Pinkerton on Medals, i. 67; and M. Mongez, "Mémoires sur l'Art du Monnayage chez les Anciens," &c. in the Transactions of the Royal Inst. of France, p. 218; 1831.

† Mongez.

‡ Pinkerton.

modern process; and in the hope that our own will be acknowledged as a fair specimen, the routine of this Mint will here be given.

Bullion is brought to the Mint in every form; amalgamations from the ore, bars, plate, jewelry, and foreign coin.* All these present a great variety as to quality. Some of the metal will be nearly pure; other portions will be of lower grade, and in every proportion, down to two-thirds fine, or less. Part will also be ductile, and fit to work; part will be brittle, and will require a process of toughening. Once more, a deposit will often consist of the two metals, gold and silver, in a mixed mass, requiring to be parted by chemical agents. To ascertain all these points is the business of the Assayer.

To bring this heterogeneous mass into good malleable metal, and to separate the gold from the silver, are not strictly Mint operations. In some countries, these preliminary processes have to be performed by private refiners. At the Mint of the United States, a department is provided for the parting, refining, and standarding of the metals, and casting them into ingots or small bars, suitable for the manufacture of coin.† These bars are about twelve inches long, half an inch thick, and from one to one and a half inches in width, according as they are to be used for different sizes of coin. Before they can be wrought, their fineness is tested by an assay; and those which are found better or worse than the legal limits, are sent back to be melted and cast over again, at the proper rate.

The ingots, being approved, are annealed or heated to redness, to soften them for rolling; and by the power of a steam-engine, they are rolled out into long and thin strips. In this form they are carried to the *drawing bench*, where, by the same engine, they are drawn slowly through the *drawing dies*, or plates of the hardest steel, nicely set to reduce the strips to their proper thickness. In the next place, they are passed through the *cutting press*, also moved by steam, and pieces or planchets of the true size are cut out. The punch moves so rapidly, that one hundred and sixty planchets are, on an average, cut out in one minute. After this process, the strip, now full of holes, is folded up, and sent back to the melting-pot.

The next step is to raise the edge of the planchet to afford a protection to the surface of the coin. This is done by the *milling machine*, in which the edge is compressed, and forced up; and which moves so nimbly, in its present state of perfection, that 560 half-dimes can be milled in a minute; but for large pieces the average is 120.

The planchets are then cleaned, annealed, and whitened, by a course of treatment not necessary to be particularized in this place. The gold pieces are next adjusted in their weight, piece by piece; the silver pieces, having before been tested by sam-

* Details are given in the chapter on Bullion.

† This department is now in the charge of Dr. J. R. McClinck, who is styled the *Melter and Refiner*.

ples from each strip, do not require such critical accuracy. After coinage, their weight is proved, by quantities.

The pieces are now ready for stamping. To effect this there is a machine, of new construction, moved by steam-power, which receives the planchets in a tube, from the hand of a workman; and of itself, slides them one by one to the proper point, within a steel collar, and between the coining dies. There, by a rotary motion, it silently but powerfully impresses the piece, and instantly pushes it away, a perfect coin, to be followed as instantly by another. And thus the coins, after counting and packing, are ready to be handed over to him who brought the bullion.*

The coining dies, we should state, are prepared by an engraver, specially maintained at the Mint for that purpose.† The devices and legends are first cut in soft steel; those parts being sunk which on the coin are raised.‡ This, being finished and hardened, constitutes what is called an *original die*. Being the fruit of a tedious and difficult labour, it is not used for coining, but for multiplying dies. It is first used to impress another piece of steel in its soft state, which then appears like the coin, the letters being raised; and is called a *hub*. This hub being hardened, impresses other pieces of steel, which, being the opposite of the coin as to the raised and sunken parts, are the coining dies. A pair of them will, on an average, perform two weeks' work.

The coining presses are of various sizes, to suit the different denominations of coin; those for the dollar and the half-dime, compared together, are as a ponderous machine by the side of a plaything. The usual speed of striking is sixty pieces per minute for the dollar and half-dollar, seventy-five for the quarter-dollar, ninety for the dime and half-dime.

The Mint is now manned by about sixty officers, clerks, and workmen. By the addition of ten or twelve men of the latter class it would be competent to a coinage of six millions of dollars annually, half in gold and half in silver, with a due proportion of small coins, and at an expense to the government of \$70,000. But if the institution were put to its utmost capacity, and with a still further increase of hands, it is estimated that it would accomplish a coinage of twelve millions annually, the cost of which would be \$106,000.§

The above particulars, if not satisfactory to the reader, will at least aid him in understanding the routine, whenever he may please to visit the Mint.

* All the manipulations, after the ingots are made, are within the department of the *Chief Coiner*. This office is now executed by FRANKLIN PEALE, Esq.

† C. GOBRECHT, Esq., is the present Engraver of the Mint.

‡ The art is called *die-sinking*, rather than *engraving*.

§ Report of Dr. Patterson, Director of the Mint, to Congress, through the Treasury Department, March 1838.

III. OF THE IMPRESSIONS ON COINS.

The piece of metal offers two disks and an edge, for whatever impressions are to be put upon it, to constitute a current coin. What should the impressions be ?

In all monarchical countries the likeness of the sovereign is almost invariably stamped on one side of the coin. This is sometimes the head only, sometimes the head and bust, but never more, as the pieces, even the largest, are too small to admit of it. Russia affords a remarkable exception ; the imperial head, since Alexander, appears on none of the coins.

The face is always in profile. A front or three-quarter view, though it would offer a more effective likeness, would present difficulties in the die-sinking, not to be explained here ; it could not be brought up by a single blow in coining, which is a conclusive objection : moreover the face, and especially the nose, would offer a protuberance, to be rapidly worn down, and render the picture false and ludicrous.

In republics, on the other hand, the likeness of the political chief is never given. This may be considered a criterion, to judge whether a republic, so called, is essentially and permanently so. Under the British Commonwealth, we find the portrait of Cromwell upon the money, but the republicanism of his government may justly be called in question. In France, the head of the First Consul was placed on the coin, with the legend *République Française* ; but very soon after, that head appears encircled with a laurel wreath, and over it the motto *Empire Français*. So in the less conspicuous dominion of Hayti, in the West Indies, we observe the effigy of President Boyer on the money, but it is well known that the name of republic is there a covering for a virtual despotism.

In Bolivia, the head of Bolivar appears on all the coins ; but that distinguished warrior has been dead for many years, and the exaltation of his image does not put the liberties of the nation in jeopardy. The other republics of Spanish America present no heads of Presidents ; though in the Argentine Republic, or Buenos Ayres, the chief is glorified by a legend, importing "Eternal praise to the Restorer Rosas."

In the United States, while the newly-established Mint was trying its powers in an experimental way, in the years 1791-92, the head of Washington, then President, was stamped on the copper cent. But this, being offered to Congress, was promptly forbidden ; and it is said (no doubt with truth) that Washington himself disapproved it. If ever a true republic could depart from the line of precedents, this Union might well have done so, in multiplying the likeness of the Father of his country.*

* The "Washington Cent," of which a few specimens escaped the Mint, is now one of the greatest numismatic curiosities, and is eagerly sought after, by collectors. There were two dies, materially different.

The republics of Europe are so few, as to afford little scope for exemplification. Still, the practice there is uniform. The Swiss coins give no portrait of the Landamman ; Holland, while a federal republic, never displayed the head of the Stadtholder ; nor did independent Venice her Doge.

As a substitute for a sovereign's head, republics have always adopted some emblematical device, expressive of Liberty. This is often the head or figure of a female, with a *pileus*, or Roman liberty-cap somewhere in sight. But the devices are various.

In Mohammedan countries (which are never republics) there is, indeed, no monarch's effigy upon the coinage. The reason of this is, that the Koran, in its wide interpretation of the second commandment, forbids the likeness to be made of any body, for any purpose. But this injunction is compensated, by Shahs and Sultans, in the pompous and vainglorious array of titles, which make up the inscription on their coins. Thus in Persia, it reads "Mahomed Shah, the king of kings." In Turkey, as late as the reign of Selim III., the inscription was "Sultan of the two lands, and sovereign of the two seas, Sultan by inheritance, son of a Sultan." His successors Mahmoud II., and Abdul Medjid (now reigning), have used, with better taste, a simpler title ; but their sweeping *toghra* or cypher, is as expressive of royalty as any portraiture.

As a final remark upon this point we observe, that *copper* coins are not usually graced with the monarch's head ; nor indeed, with any such elaborate devices as appear on gold and silver.

Thus much for the face or *obverse* of coins : we proceed to notice the *reverse*.* On this side is usually displayed the shield or coat of arms ; which is, as it were, the national seal, attesting the weight and purity of the piece. But this is not an universal rule. In France, and some other countries, the reverse exhibits a wreath, enclosing the denomination or value of the coin. This is very common in small coins every where ; our own are examples. It has been thought by some, that the reverse should be diversified by devices illustrative of national events, as is the case with medals, thus constituting a train of medallie monuments for history. The Papal coinage shows a considerable variety of subjects in this way. And in Bavaria, from 1827 to 1830, there were as many as seven different reverses on the dollars.

Besides the pictures, a coin is always stamped with words, in full or abbreviated, and almost always with dates. The words are disposed, technically, either as *legends* or *inscriptions*. A legend runs around the head or shield, near the border ; sometimes it is at the bottom, under a line, which space is called the *exergue*. An inscription (which is much less frequent) occupies the *field*, or the part usually taken up by the head or shield. Sometimes the motto is found on the edge of the coin.

* In common terms, the two sides of a coin are *head* and *tail* ; in French, the terms are *croix* et *pile*.

In respect to these legends or inscriptions, the following points are to be observed.

1. Being meant for the information of all sorts of persons, learned or unlearned, they should be in the language of the country. Yet this common-sense proposition has found favour only within the last half century, Latin terms being almost universally used. Russia appears to have been the first, of Christian nations, to employ a vernacular legend. The United States of America used this style from the first, though not exclusively; the Latin motto "*E pluribus Unum*," (which was not acknowledged in the law) floated in a scroll over the eagle's head, until the change of standard in 1834, when it was discontinued. In 1791, republican France began to inscribe her own language upon her coins. The example has since been followed by most nations of Europe; but England and Austria adhere to the old system.

2. The coin should declare its country. This is always done, with gold and silver; not always with billon and copper. Sometimes it is so abbreviated or Latinized, that the common reader can learn nothing from it.

3. The coin should declare its denomination, or value. French coins are very explicit; "5 Francs" and "20 Francs" occupy the field. In most countries this convenience is added to the coinage: but not so in England, except in the small silver coins. Sometimes the weight, or fineness, or both, are given; as in Russia, Poland, parts of Germany, and the republics of Spanish America.

4. The date of the coinage should be given. This was not the practice, some centuries ago; but now it is hard to find an exception.*

5. When there are several mints in one country, some distinctive letter or mark is usually given, to indicate at which one the piece was coined. In the United States, the three branch mints at Charlotte, Dahlonega, and New Orleans, use the initials C. D. and O., respectively. The principal Mint, at Philadelphia, employs no mark, and its coins are ascertained by that fact.

In South America, some of the mints use *monograms*, or involutions of letters; as **M** for *Lima*, **P** for *Potosi*.

IV. OF THE POWER OF COINING—TO WHOM IT IS ENTRUSTED.

The right of coinage ought always to be vested in the sovereign, and be regulated by known laws. In a confederated republic, it should lodge in the general government, and not with the states. It is so in the United States, and most of the American republics: it is not so in Switzerland, nor, formerly, in the United Provinces of Hol-

* On the coins of Mohammedan countries, the date is of course, the year of the Hegira. But in Turkey, the manner of dating is peculiar. For example: Mahmoud II. ascended the throne A. H. 1223 (A. D. 1805), and all the coins of his long reign bear that date. But on another part of the coin, the year of his reign, as 1, 10, 22, &c. is given; this, added to the former, gives the true millésime of the piece.

land. In Mexico, the laws regulating the coinage are enacted by the Federal Congress, but the mints are conducted by the States in which they are located, without supervision or control; hence there is an irregularity in the value of their dollars.

The mischiefs of private coinage need not be dwelt upon here. No one will strike money without receiving an adequate profit; but coins are of such a nature, that they cannot yield any gain, without fraud. Coin is intrinsically worth nothing, or next to nothing, beyond its weight of gold or silver, in mass. Again, it is impossible to guard against moderate frauds in the alloying of coins, such as making them eight-tenths, instead of nine-tenths fine. The public faith alone is a sufficient guarantee of the integrity of a coin.*

During the suspension of specie payments in England, when the private coinage of silver was extensively carried on, the *shilling token* was far below the value of a shilling, and very irregular between one maker and another. In our own country, the gold coinage executed by Mr. C. Bechtler, in North Carolina, which circulates freely at the South and West, is not far below its declared value, if a single piece were in question; but in considerable quantities, the depreciation is seriously felt.†

It has thus been attempted to lay down some of the principles by which coinage is regulated. Other matters might have been introduced, but not without infringing on our design, and the good will of the reader.

* The difficulty of deciding upon *good counterfeits* is illustrated by a curious case at Nashville, Tennessee, in 1829, which is noticed in the chapter on Counterfeits.

† The loss is $2\frac{1}{2}$ to 3 per cent. See particulars in the chapter on Bullion.

CHAPTER II.

THE SYSTEMS OF COINAGE OF THE VARIOUS NATIONS.

IN this chapter, which fulfils the principal object of the work, and constitutes its greater portion, the monetary systems of the different countries in the world will be exhibited, with such incidental details as are naturally suggested by the subject.

The method generally, though not rigidly, pursued, is the following. Each nation is treated of distinctly. The order of governmental succession, and some historical facts bearing upon the coinage or metallic currency, are briefly set forth. The legal standards are then stated, in the metrical terms of the country, and of our own. The annual product of precious metals, if any, and the amount of coinage, next receive some notice. The article is concluded with tables of the gold and silver coins, elucidating the previous statements, and, in general, serving the inquiries of dealers and amateurs in coin, legislators, and persons of varied reading, desiring to extend their information in this direction. These tables have been prepared with great care, and chiefly from trials made here. They comprise the following specifications: 1, the *denomination*, or name of the coin—2, the *dates*—3, the *reign*, or *government*—4, the *weight*, in troy grains—5, the *fineness* in thousandth parts,* and 6, the *value* in our money.† The system has been, not to cull the finest specimens, but to take the ordinary circulation, not too much defaced by wear; and to operate upon large quantities, in all practicable cases, so as to obtain the true average.

ARGENTINE REPUBLIC.

(Formerly *La Plata*.)

Republica Argentina Confederada.

THIS country formerly included Bolivia, and the whole was a vice-royalty of Spain. Containing the famous silver mining region of Potosi, it was well designated *La*

* At the end of the book is a table for converting *thousandths*, or *millièmes*, into *carats*, *loths*, *dineros*, &c.

† For the convenience of foreign readers, a table is placed in the Appendix for converting the American valuation into the British and French.

Plata; but now that the mines are chiefly enclosed in the bounds of another state, the propriety of the new title of *Argentine Republic*, seems not so evident.

The Spanish domination was thrown off in 1810, but independence was not formally declared until 1816. In 1825, the whole northern part of the country, including most of the silver mines, was set off into the distinct republic of Bolivia. The name by which the country is now known, is of recent adoption. Frequently the whole territory is spoken of, by the name of its chief city, Buenos Ayres.

The coinage is professedly upon the Spanish basis (see *Spain*); but in its results, is exceedingly irregular and uncertain. In fact, neither the doubloons nor dollars are worthy to be received by count, as the ensuing table will show. (See Plate V., with the description.)

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-----------------|---------|------------------------------|-----------------|-------------------|--------------------|
| Doubloon . . . | 1828-32 | Provinces of R. de la Plata. | 418 | 815 | 14 66 |
| do. . . . | 1813-32 | do. | 415 | 868 | 15 51 |
| Dollar | 1828 | do. | 380 | 862 | 88 2 |
| do. | 1828 | do. | 411 | 822 | 91 |
| do. | 1828 | do. | 418 | 800 | 90 |
| Half do. . . . | 1815 | do. | 205 | 888 | 49 |
| Quarter do. . . | 1813-16 | do. | 98 | 886 | 23 4 |
| Dollar | 1838-39 | Argentine Republic. | 388 | 928 | 97 |
| do. | 1838-39 | do. | 427 | 894 | 1 02 8 |
| do. | 1838-39 | do.* | 412 | 915 | 1 01 5 |

A U S T R I A .

Oesterreich.

THE coins of the Austrian Empire at this day are of three classes; a fourth, though still current, ceased to be issued in 1800. Their origin and character will be explained by what follows.

* This is the average of the Argentine dollars. The two preceding are extremes. But in fact, any single dollar *may* combine the extremes of good or of bad, in weight and fineness; in a word, one dollar may be worth 93½ cents, and another 107 cents; nor can any eye or hand detect a difference.

When the French Revolution began to convulse all Europe the monarch (Francis II.) who ruled what is now the Empire of Austria, was the titular Emperor of Germany; and his dominions comprised the Archduchy of Austria and its dependent provinces, the Kingdom of Hungary, the Duchy of Milan or Lombardy, and the Low Countries, now known as Belgium.

For each of these four regions there was a distinct coinage. The *Austrian* was to be known by its double-headed eagle; the *Hungarian*, by the images of the Virgin and Child; the *Lombard* by its shield, quartered with eagles and serpents; and the *Brabantine* or *Belgian*, by the X-shaped cross, profusely ornamented. About the close of the last century, the Low Countries were detached from German rule, and the coinage of the gold *sovereign* and silver *crown*, as already intimated, was arrested. Near the same time, Lombardy also passed into other hands, and a second class of imperial coin was for a time suspended.

The course of events, in that memorable period, brought on another change in Austrian moneys, affecting, however, only the inscriptions upon them. In 1806, the ancient German Empire was dissolved; Francis II. of Germany, became Francis I. of Austria, and the stately legend of "*Roman Emperor, ever august*," gave place to the simpler one of "*Emperor of Austria*."*

At the pacification of Europe in 1815, Lombardy, with Venice annexed, reverted to Austria; and soon after, a monetary system was decreed for that country. There are now, therefore, the three series of Austrian, Hungarian, and Lombard coins; but in such harmony with each other, as to be in some respects interchangeable.

1. The coins proper to Austria are, *in gold*, the single, double, and quadruple ducat — *einfache, doppelte, and vierfache ducaten*. The ducat and its multiples are coined at the rate settled in 1559, and generally in use in other countries; that is, 67 ducats to be made from a Cologne mark of gold,† 23 $\frac{3}{4}$ carats fine. Reducing these terms to our own, the ducat should weigh 53·87 troy grains, and the fineness should be 986 thousandths. Since 1786, its legal value is 4 $\frac{1}{2}$ Austrian florins; but it is at a premium, against silver.‡ It is designated in mercantile papers by the mark R , after the manner of our \$, for *dollar*.

The *silver* coins are of six denominations: 1, the *reichsthaler*, or rixdollar; 2, the *gulden*, or florin, which is half of the former, but is itself the principal money of account, being divided into 60 *kreutzers*; 3, the *zwanziger*, or piece of 20 *kreutzers*, which is one-third of the florin; 4, the *zehner*, or 10 *kreutzers*; 5, the piece of 5 *kreutzers*; and 6, the piece of 3 *kreutzers*. The standards of these were fixed by the

* The initials R. I. S. A. signified *Romanus Imperator, semper augustus*, the Emperor of Germany being the honorary Emperor of Rome. The coins of the Electorates used to bear the letters S. R. I., for "The Holy Roman Empire." The suffix of "*semper augustus*" is noticed by Dr. Arbuthnot, as a motto on some coins of Constantine. Treatise, p. 8.

† The Cologne mark, a celebrated money-weight, is equal to 233·855 grammes, or 3609·5 troy grains. (See *Germany*.)

‡ Recently the market price of the ducat was 4 florins 43 *kreutzers*.

well known money-convention between Austria and Bavaria, in 1753; from which circumstance they are commonly styled *convention* coins. The terms of this compact were, soon after that date, adopted by most of the German powers, and tended very much to give uniformity to the moneys of Germany. They have recently been superseded in every state except Austria. (See *Germany*.)

The following are the legal standards of Austrian silver coin :

| DENOMINATION. | PIECES, TO A COL. MARK FINE. | PIECES, TO A COL. MARK ALLOYED. | PIECES TO A VIEN. MARK ALLOYED. | FINENESS, IN LOZHS. | TROY WT. GRS. | FINENESS, IN THOUS. |
|--------------------|---------------------------------|------------------------------------|------------------------------------|------------------------|-------------------|------------------------|
| Rix dollar . . . | 10 | 8 $\frac{1}{2}$ | 10 | 13 $\frac{1}{2}$ | 433 $\frac{1}{6}$ | 833 |
| Florin | 20 | 16 $\frac{2}{3}$ | 20 | 13 $\frac{1}{2}$ | 216 $\frac{1}{2}$ | 833 |
| 20 Kr. (Zwanziger) | 60 | 35 | 42 | 9 $\frac{1}{2}$ | 103 $\frac{1}{3}$ | 583 |
| 10 Kr. (Zehner) . | 120 | 60 | 72 | 8 | 60 $\frac{1}{5}$ | 500 |
| 5 Kreutzer . . . | 270 | 105 | 126 | 7 | 34 $\frac{2}{3}$ | 437 |
| 3 Kreutzer . . . | 400 | 137 $\frac{1}{2}$ | 165 | 5 $\frac{1}{2}$ | 26 | 344 |

2. The coins of Hungary are the same in all respects, except the devices stamped on them, as those of Austria. The Hungary or Kremnitz ducat was formerly of a rather higher standard of fineness than the Vienna ducat, but is not so now. No larger pieces than single ducats are coined.

3. The coins of the Lombard-Venetian kingdom are, *in gold*, the *sovrano*, *souverain*, or sovereign, and its half. These began to be issued in 1819, although the edict declaring the standards appears of the date of 1823.* These should be nine-tenths fine, and the whole piece should weigh eleven denars 3 $\frac{1}{2}$ grains, or 174 $\frac{1}{2}$ grains troy.

The Lombard *silver* coins are of five denominations: 1. The *scudo*. 2. The half scudo. 3. The *lira*, or livre. 4, 5, The half and quarter lira. These are all, by legal standard, nine-tenths fine, except the last, which is six-tenths. The weight of the scudo should be 25 denars, 9.5 grains, or 401 troy grains, the others in proportion; except the quarter-lira, which should weigh 25 grains troy. The scudo is of finer metal than the rixdollar, but reduced in weight, to make it of the same value, by count. The two cannot easily be distinguished by the eye. (See Description of Plate IX.)†

* See a valuable statistical work, entitled *Das Oesterreichische Münzwesen, vom 1524 bis 1838*, (Information upon Austrian Moneys, from 1524 to 1838,) by Dr. S. Becher, 2 vols.; Vienna, 1838.

Another useful numismatic work, with numerous engravings, has recently been published in numbers, at Pesth, in Hungary, 1832-36. It is by M. Urosius Andreits, and is entitled *Münz-Journal des neunzehnten Jahrhunderts*, (Magazine of Moneys of the Nineteenth Century.)

† The coins of Austria and Hungary are commonly designated by the prefix of *k. k.* for *kaiserliche königliche* (imperial royal), as, for example, *k. k. ducaten*.

The Austro-Belgic coinage (noticed under the head of Belgium), consisted, in gold, of the *souverain*, at 22 carats, or 917 thousandths fine, and of the legal weight of 172 grains troy; and in silver, of the crown and its subdivisions, at 372 thousandths fine, and $7\frac{1}{2}$ crowns to the Cologne mark, or 19 dwts. troy to each piece. These crowns, being now much worn, are rapidly recoined in Germany into new denominations. They are frequently brought to this Mint also.

The amount of coinage in gold and silver, in the Austrian empire, is about twelve millions of florins (nearly six millions of our dollars), annually. Formerly the silver coinage greatly exceeded the gold; but for a few years past, the proportion is entirely reversed, and the gold issues are twice as great as the silver. The whole amount, from 1792 to 1839, forty-eight years, is $640\frac{1}{2}$ millions of florins.

Austria produces a considerable share of the precious metals. In sixty-seven years, from 1773 to 1839, the amount brought from the mines for coinage, was about 250 millions of florins, making an annual average of near four millions. The production is now somewhat greater, and is about half in gold, and half in silver.

The following is the line of imperial succession, of late years. Francis I., who reigned in right of his consort, Maria Theresa, died in 1765. His son, Joseph II., reigned from that year to 1790; but during both these reigns, the name of Maria Theresa usually appeared on the coins, until her death, in 1780. Leopold, previously the Grand Duke of Tuscany, and brother of Joseph, reigned from 1790 to 1792. His son, Francis II., retained the throne until 1835, and was then succeeded by Ferdinand I., the reigning emperor.

GOLD COINS.*

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------|---------|----------------|-----------------|---------------------|--------------------|
| Ducat . . . | 1762 | Maria Theresa. | 53·5 | 985 | 2 26 9 |
| Sovereign . . | 1778 | do. | 170 | 917 | 6 71 3 |
| Ducat . . . | 1790 | Leopold II. | 53·5 | 986 | 2 27 2 |
| Do. . . . | 1809-34 | Francis I. | 53·7 | 983 | 2 27 4 |
| Quadruple . . | 1830 | do. | 215·5 | 983 | 9 12 2 |
| Sovereign . . | 1831 | do. | 174·5 | 988 | 6 74 8 |
| Do. . . . | 1838 | Ferdinand I. | 174·5 | 901 | 6 77 1 |
| Half do. . . | 1839 | do. | 87 | 902 | 3 38 |
| Ducat . . . | 1838 | do. | 53·7 | 985 | 2 27 8 |
| Quadruple . . | 1840 | do. | 215·5 | 985 | 9 14 |
| Hungary ducat . | 1839 | do. | 53·7 | 986 | 2 28 1 |

* For specimens of recent coinage, with accompanying statements, we are indebted to J. G. SCHWARZ, Esq., Consul of the United States at Vienna, and a valued correspondent of this Mint.

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|------------------|-----------|---------------|-----------------|---------------------|--------------------|
| Rix dollar . . . | 1753-80 | Maria Theresa | 430 | 835 | 96 7 |
| do. . . . | 1780-89 | Joseph II. | 431 | 835 | 97 |
| Florin | 1788 | do. | 215 | 835 | 48 4 |
| Rix dollar . . . | 1790-92 | Leopold II. | 432 | 835 | 97 2 |
| do. . . . | 1793-1800 | Francis II. | 432 | 835 | 97 2 |
| Brabant crown . | 1793-99 | do. | 454 | 875 | 1 07 |
| Rix dollar . . . | 1834 | Francis I. | 432 | 833 | 97 |
| Florin | 1834 | do. | 216 | 838 | 48 8 |
| 20 Kreutzer . . | 1834 | do. | 103 | 580 | 16 1 |
| 10 Kreutzer . . | 1834 | do. | 60·5 | 500 | 8 1 |
| Rix dollar . . . | 1840 | Ferdinand I. | 432·5 | 834 | 97 2 |
| Kremn. do. . . . | 1839 | do. | 432·5 | 834 | 97 2 |
| Florin | 1840 | do. | 216·5 | 834 | 48 7 |
| Kremn. do. . . . | 1839 | do. | 216·5 | 834 | 48 7 |
| 20 Kreutzer . . | 1840 | do. | 103 | 582 | 16 2 |
| Kremn. do. . . . | 1839 | do. | 103 | 582 | 16 2 |
| 10 Kreutzer . . | 1840 | do. | 60 | 498 | 8 1 |
| Scudo | 1839 | do. | 401·5 | 902 | 97 6 |
| Half do. . . . | 1839 | do. | 201 | 902 | 48 8 |
| Lira | 1839 | do. | 67 | 900 | 16 2 |
| Half do. . . . | 1839 | do. | 33·5 | 900 | 8 1 |
| Quarter do. . . | 1839 | do. | 25 | 606 | 4 1 |

BADEN.

PREVIOUS to 1301, this was but an inconsiderable state. In that year, by the treaty of Luneville, it was doubled in territory and population, and two years later received further additions. In 1303, the Margrave Charles Louis was advanced to the rank of an Elector; and in 1306 assumed the title of Grand Duke. At the settlement of Germany in 1814-15 by the Congress of Vienna, the continuance of Baden as an independent state was very uncertain; but the influence of the Emperor of Russia, who was a son-in-law of the Grand Duke, decided the question. Baden has since ranked in the second class of German states.

There seems to have been no gold coinage worthy of notice, previous to the accession of Louis, in 1819. Since that date, there are pieces of ten and five florins, of nine-tenths fine.

The silver coins are of various classes. The *convention* standards (see *Austria*) were adopted as early as 1765; by which ten rix dollars, or twenty florins, were coined from a Cologne mark of fine silver. Subsequently the florin was reduced to the rate of 24 pieces to the fine mark; and by the conventions of 1837-38, it has been further reduced to $24\frac{1}{2}$; which is likely to be a permanent basis. (See *Germany*.) Since 1813, there has been a regular coinage of crown dollars (*kronen thaler*) at the Austrian rates. These pieces, being worth about $2\frac{2}{3}$ florins of the 24 rate, seem illy fitted to the money system, and were, no doubt, intended for an international currency. They are now superseded.

The legal fineness of the principal silver coins is as follows: the convention dollar, 833 thousandths; the florin of 24, 750; the crown, 875; and the new florin of $24\frac{1}{2}$, 900 thousandths. (See Plate XIII.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------|---------|--------------------|-----------------|---------------------|--------------------|
| Ten Gulden . . | 1819 | Louis, Grand Duke. | 105.5 | 900 | 4 08 6 |
| Five Gulden . . | 1819-28 | do. | 52.7 | 900 | 2 04 3 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-------------------|---------|-----------------------------|-----------------|---------------------|--------------------|
| Specie dollar . . | 1765-78 | Charles Frederic, Margrave. | 428 | 833 | 96 1 |
| Crown . . . | 1813-16 | Interregnum.* | 455 | 875 | 1 07 3 |
| do. . . . | 1819-29 | Louis, Grand Duke. | 455 | 877 | 1 07 5 |
| Two Gulden . . | 1822-25 | do. | 392 | 755 | 79 8 |
| Ten-kreutzer . . | 1830 | do.† | 42 | 500 | 5 5 |
| Crown . . . | 1831-34 | Leopold. | 456 | 877 | 1 07 7 |
| Gulden . . . | 1837-39 | do. | 164 | 900 | 39 7 |
| Half do. . . . | 1839 | do. | 82 | 900 | 19 8 |

B A V A R I A.

Bayern.

THIS kingdom formerly consisted of numerous petty sovereignties, each of which coined its own money. Such were the Duchies of Upper and Lower Bavaria; the Palatinate of the Rhine;‡ the Margraviate of Brandenburg-Bareuth; and various bishoprics and imperial cities. The two Duchies of Bavaria, however, were long ago united; and in 1623 were constituted an electorate. In 1777, by the death of the Elector Maximilian Joseph without issue, the realm passed over to Charles Theodore, of the elder Bavarian branch, then Elector of the Palatinate. This may be considered the date of the extinction of the latter sovereignty, or rather its incorporation into Bavaria.§ In 1799, Charles Theodore also died without issue, and was succeeded

* These crowns bear neither a sovereign's head nor name, but simply the title *Großherzogthum Baden*—Grand Duchy of Baden. They indicate the unsettled state of the country at that epoch.

† Dr. Becher mentions a thaler of 100 *kreutzers*, of the year 1829, of 875 thousandths fine, and worth 1½ florins. This coin we have not seen.

‡ Sometimes called *Manheim*, which was the capital of the Palatinate.

§ The amateur, who has been embarrassed by pieces bearing the abbreviations "Car. Theod. C. P. R." &c., will understand that they belong to the Palatinate of the Rhine, and are properly classified with Bavarian coins. He must also distinguish between the coins of Electoral Brandenburg, now a part of Prussia, and those of Brandenburg Anspach and Bareuth.

by Maximilian Joseph II. of Deux-Ponts, of remote kindred. This prince was, in 1806, raised to the regal dignity by Napoleon; since which time, Bavaria has maintained the rank of a kingdom.

The other principalities already named, enjoyed the prerogative of coinage, until towards the close of the last century. The emissions were no doubt very limited, and consisted chiefly of ducats and convention-dollars, of the established rates.

The only gold coin is the *ducat*, of the German standards. (See *Germany*.) The silver coins are, the *convention-thaler*, at the rate of "ten to the fine mark," and the *kronen-thaler*, or crown, lately discontinued; besides the *scheidemünze*, or small coin. This state was a party to the German conventions of 1837-38, by which a *gulden* and *half-gulden* were to be coined by the southern powers, at nine-tenths fine. This coinage was immediately carried into effect, and will doubtless soon supersede the previous issues. The amount coined, from October 1837, to June 1839, was four million pieces of one florin or gulden, and two millions of the half-florin; in all, near two millions of dollars in our money.* (See Plate XIII.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|------------------|-------|-----------------------|-----------------|---------------------|--------------------|
| Ducat . . . | 1764 | Maximilian Joseph. | 53 | 980 | 2 23 7 |
| do. (Palatin.) . | 1764 | Charles Theodore. | 53 | 980 | 2 23 7 |
| do. . . . | 1797 | do. | 53 | 980 | 2 23 7 |
| do. . . . | 1800 | Maximilian Joseph II. | 53 | 984 | 2 24 6 |
| do. . . . | 1832 | Louis. | 53.5 | 987 | 2 27 4 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|---------------------|---------|--------------------|-----------------|---------------------|--------------------|
| Specie-dollar . | 1755-60 | Maximilian Joseph. | 430 | 833 | 96 5 |
| do. . . . | 1762-72 | do. | 430 | 831 | 96 3 |
| Kopfstück . . | 1773 | do. | 102 | 580 | 15 9 |
| Crown, (Palatin.) . | 1758 | Charles Theodore. | 397 | 995 | 1 06 4 |
| Florin, do. . | 1758 | do. | 198 | 995 | 53 1 |

* Letter of R. DE RUEDORFFER, Esq., U. S. Consul at Munich.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|---------------------------|---------|-----------------------|-----------------|-------------------|--------------------|
| Specie-dollar, (Palatin.) | 1765 | Charles Theodore. | 430 | 833 | 96 5 |
| do. . . | 1778-80 | do. | 430 | 833 | 96 5 |
| do. . . | 1800 | Maximilian Joseph II. | 430 | 833 | 96 5 |
| do. . . | 1806-22 | do. (king) | 430 | 835 | 96 7 |
| Crown . . . | 1809-25 | do. | 455 | 875 | 1 07 2 |
| do. . . . | 1826-32 | Louis. | 455 | 875 | 1 07 2 |
| 6 Kreuzers . . | 1833 | do. | 41 | 320 | 3 5 |
| 3 do. . . . | 1833 | do. | 21 | 317 | 1 8 |
| Kreutzer . . . | 1833-39 | do. | 12 | 177 | 0 6 |
| Florin | 1839 | do.* | 163·5 | 900 | 39 6 |
| Half do. . . . | 1838 | do. | 82 | 900 | 19 8 |

BELGIUM.

La Belgique.

THIS country was formerly known as Flanders, or the Low Countries. Though so long the game for which the empires of Europe contended, and so often merged in one or other of them, it has constantly preserved its nationality, and is now a distinct monarchy.

By the treaty of 1748, it was apportioned to Austria. In 1795, it was annexed to the French Republic. In 1815, it was incorporated with Holland into the kingdom of Netherlands. By the Revolution of 1830, it became an independent nation, with Leopold I. as its king.

Two systems of coinage only will require any details; that of Austrian Belgium, from 1750 to 1800, and that of the new kingdom, since 1830.

The gold *souverain*, or sovereign, ordained in 1749, was to weigh 7 *esterlins* 3 *as*, (about 172 troy grs.) and to be 22 carats, or 917 thousandths fine. The silver crown,

* The new florins vary in fineness from 899 to 900·5.

(commonly known as the Brabant crown), which began to be coined in 1755, was to weigh at the rate of $7\frac{1}{2}$ pieces to the Cologne mark, or 456 troy grs. per piece, the half and quarter crown in proportion; and all of the fineness of 10 *deniers* $11\frac{1}{2}$ grs., or 372 thousandths.

A coinage of gold and silver pieces called *lions*, was projected in 1790, by a congress of Belgian Provinces, but was not fairly carried into effect. There are some pieces of that year.

By the law of 1832, gold and silver coins are issued of the same denominations and standards as those of France. The amount of coinage is trivial; the circulation of Belgium consisting chiefly of French and Dutch coin.* (See Plate X.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|------------------|-------|----------------|-----------------|---------------------|--------------------|
| Sovereign . . . | 1778 | Maria Theresa. | 170 | 917 | 6 71 3 |
| do. | 1793 | Francis II. | 170 | 917 | 6 71 3 |
| Forty francs . . | 1835 | Leopold I. | 199 | 895 | 7 67 |
| Twenty do. . . . | 1835 | do. | 99.5 | 895 | 3 83 5 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-------------------|-----------|-------------|-----------------|---------------------|--------------------|
| Crown | 1781-90 | Joseph II. | 453 | 875 | 1 06 7 |
| do. | 1790-92 | Leopold II. | 453 | 875 | 1 06 7 |
| do. | 1793-1800 | Francis II. | 454 | 875 | 1 07 |
| Half do. | 1795-1800 | do. | 226 | 875 | 53 3 |
| Five francs . . . | 1833-35 | Leopold I. | 385.5 | 895 | 93 1 |
| Two do. | 1835 | do. | 154 | 895 | 37 |
| Franc | 1835 | do. | 77 | 897 | 18 6 |
| Half do | 1835 | do. | 38 | 897 | 9 3 |
| Quarter do. . . . | 1835 | do. | 19 | 897 | 4 6 |

* Letter of T. H. BARKER, Esq., late U. S. Consul at Antwerp, through whose attention some specimens were received for assay.

BOLIVIA.

THIS country, which originally formed a part of Peru, and which was afterwards included in the vice-royalty of Buenos Ayres, became a distinct nation in 1825; taking its name from the celebrated Bolivar. The name and effigy of that personage always appear on the coins.

The monetary system is that of Spain. The mint, which is at Potosi, has long performed an important part in the coinage, both royal and patriot, of Spanish America. Its mark is the figure **P**; which is an interlacing of the letters, P, T, S, I.

Since the year 1830 inclusive, it has been the policy of this government to debase its silver coin, of denominations less than the dollar. The reduced standard of fineness is eight dineros, or two-thirds; about twenty-six per cent. worse than the dollar standard. The annual issue of this depreciated coin is nominally restricted to 200,000 dollars; but, as might be expected, this limit is usually exceeded. In 1837, the base coinage amounted to 302,000 dollars; in 1835, it was 509,000 dollars. The pieces are of good colour, and appear as well as the whole dollar.

Bolivia produces a large share of the precious metals. Under the Spanish government, the annual coinage was, in gold, about half a million of dollars, and in silver, over three millions. Of late years, the amount has fallen to 150,000 dollars in gold, and about two millions in silver.* (See Plate IV.)

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-----------------|---------|--------------------|-----------------|-------------------|--------------------|
| Doubloon . . . | 1827-36 | Bolivian Republic. | 416·5 | 870 | 15 58 |
| Dollar . . . | 1827-37 | do. | 416·5 | 902 | 1 01 2 |
| Half do. . . . | 1827-28 | do. | 208 | 903 | 50 5 |
| Quarter do. . . | 1827-28 | do. | 104 | 900 | 25 2 |
| Half do. . . . | 1830 | do.† | 208 | 670 | 37 5 |
| Quarter do. . . | 1830 | do. | 103·5 | 675 | 18 8 |
| Dollar | 1840 | do.‡ | 417 | 900 | 1 01 1 |

* British Statistical Tables. See Appendix.

† The weight of these depreciated coins varies from 205 to 210 grains, (which is regular for that region,) and the fineness, from 668 to 674 thousandths.

‡ Vary in weight from 409 to 425 grains; in value, 99 to 103 cents.

BRAZIL.

WITHIN the period which will come under notice, Brazil appears first as a colony of Portugal; next as the residence of the sovereign, by which Portugal, from being the parent, seemed to become the dependent; and finally, as a distinct nation, taking rank as an empire.

The following has been the monarchical succession.—John V. reigned from 1706 to 1750; Joseph to 1777; Maria I. to 1816; but during the earlier part of her reign, the name of her consort, Peter III., appeared with hers on the coin, until his death in 1786. In 1799, the queen having become mentally imbecile, her son, John Maria, began to administer the government as Regent. In 1804, her name was displaced from the coin, and that of the Regent substituted. Three years after, upon the invasion of Portugal by the French, his court was removed from Lisbon to Rio Janeiro. In 1816, he became king, with the title of John VI. The revolution of 1822 separated Brazil from the mother country, and Peter I. was placed upon the throne, as Emperor. Another revolution, in 1831, dethroned this monarch, and installed the infant Peter II.; then only six years of age.

Although both countries reckon by *reis*, there has long been a difference in the valuation. As early as 1747, it was decreed that a mark of such silver as was coined into 7500 reis for Portugal, should make one-tenth more, that is, 8250 reis, in Brazil.

Previous to 1822, the moidore (*moneda d'ouro*), of 4000 reis, and its half, were the gold coins of Brazil. In 1822, a new coinage was ordained, of pieces of 6400 reis (familiarily called half-joes), weighing four oitavas, at 22 carats fine. This is equivalent to 221·4 troy grains, at 917 thousandths. The same coinage was confirmed by the law of October 1833, and the value of the piece fixed at 10,000 reis, currency; but 6400 still appears on the coin.

The silver coins previous to 1833 were, the patacoon, or piece of three *patacs* (960 *reis*), and of two, one, one-half, and one-quarter patac. They were professedly 11 *dinheiros* fine, or 917 thousandths. In actual fineness, as well as weight, they betray much irregularity, as will appear by the ensuing tables.

In 1833, a silver coinage was instituted, with new devices. The denominations were these five: 1200, 800, 400, 200, and 100 reis. The first piece is the equivalent of the former 960 reis, and all are intended to be of Spanish standard fineness; though in fact they are somewhat below.

The currency of Brazil is chiefly in paper; except that for household purposes

copper is largely used. The silver coins are in market, at fluctuating prices ; in October 1839, the piece of 1200 reis was worth 1630 in paper.

Small ingots of gold, assayed and stamped at the government offices, are used in the circulation of the country, and are not allowed to be exported.*

In a statement of a sum of money, the milreis and reis are divided by the figure \$, as for example, 6 \$ 400, which is 6400 reis.

The coinage is of small amount. In six years, from 1833 to 1838, the gold amounted to 377,700 milreis, the silver only to 33,000. The annual average therefore, in both kinds, is about 60,000 dollars, in our money. From all gold sent to the Mint, 6 $\frac{1}{4}$ per cent is deducted ; from silver, 13 $\frac{1}{2}$ per cent.

Brazil is a famous gold-producing region. The mines being chiefly in British hands, the metal passes out of the country uncoined. From statistics to the middle of 1839, we gather that the annual produce of the principal mines, in latter times, is about 700,000 dollars ; besides which, a considerable quantity is obtained from private mines and from the rivers, which comes to Rio for sale, but does not pass through the Intendant's office for the payment of duty. It is doubtless sufficient to increase the sum total of Brazilian production to 900,000 dollars annually.†

All the mines, except Gongo Soco, pay to government a duty of five per cent. on gold raised, and an additional two per cent. as export duty. The primary duty paid by Gongo Soco is ten per cent.‡ (See Plate V.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|----------------|---------|-------------------------|-----------------|---------------------|--------------------|
| Moidore . . . | 1779 | Maria I. and Peter III. | 125·5 | 914 | 4 94 |
| do. . . . | 1807-13 | John, Regent. | 125 | 914 | 4 92 |
| do. . . . | 1819 | John VI. | 124·5 | 914 | 4 90 |
| Half-joe . . . | 1822-31 | Peter I. Emperor. | 221·5 | 914 | 8 71 7 |
| do. . . . | 1833-38 | Peter II. do. | 221·5 | 915 | 8 72 7 |

* Kelly's Cambist. art. *Rio de Janeiro*.

† Jacobs, quoting various authorities, estimates the annual product from 1810 to 1829, at a sum equal to \$986,000. (Inquiry, &c. 342.) Our statistics from Brazil, will be found in the Appendix.

‡ Letter of G. W. SLACUM, Esq., U. S. Consul at Rio.

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|---------------|---------|-------------------------|-----------------|---------------------|--------------------|
| 640 reis . . | 1750-77 | Joseph I. | 274* | 915 | 67 5 |
| do. . . . | 1777-86 | Maria I. and Peter III. | 267 | 903 | 64 9 |
| 320 reis . . | 1777-86 | do. do. | 132 | 903 | 32 1 |
| 640 reis . . | 1786-87 | Maria I. | 274 | 903 | 66 6 |
| do. . . . | 1800-04 | do. | 294 | 903 | 71 4 |
| 320 reis . . | 1800-04 | do. | 130 | 903 | 31 6 |
| 640 reis . . | 1804-16 | John, Regent. | 284† | 903 | 69 |
| 320 reis . . | 1804-16 | do. | 132 | 910 | 32 3 |
| 960 reis‡ | 1810-16 | do. | 413 | 900 | 1 00 1 |
| do. . . . | 1816-21 | John VI. | 416 | 900 | 1 00 8 |
| 640 reis . . | 1816-21 | do. | 275 | 910 | 67 4 |
| 960 reis . . | 1822-26 | Peter I., Emperor. | 416 | 900 | 1 00 8 |
| 640 reis . . | 1822-26 | do. | 276 | 905 | 67 2 |
| 1200 reis . . | 1837 | Peter II. | 414 | 891 | 99 4 |
| 800 reis . . | 1838 | do. | 276 | 891 | 66 2 |
| 400 reis . . | 1837 | do. | 138 | 886 | 33 |
| 200 reis . . | 1837 | do. | 69 | 886 | 16 5 |
| 100 reis . . | 1837 | do. | 34·5 | 886 | 8 2 |

BRITAIN.

OUR notice of the coinage of Great Britain will commence with the accession of George I. The various reigns since that date, have occurred in the following order:

* These vary from 267 to 283 grains; the newest are the lightest.

† These vary from 270 to 294 grains.

‡ This is simply the Spanish dollar, in a new dress; being softened by annealing, and then restamped. The pillars may be seen peeping from beneath, upon close observation. In the same way, Bank Tokens were made in England, in 1804, from the same coins. (See *Britain*.)

George I. 1714 to 1727; George II. to 1760; George III. to 1820; George IV. to 1830; William IV. to 1837; Victoria, from 1837, reigning sovereign.

The basis of British money is the *pound sterling*, of 20 shillings. This was at first represented by the *guinea*, a gold coin, ordained in 1675, during the reign of Charles II.* After some years, from the depreciation of the silver coinage by wear and fraudulent arts, as well as from other causes, gold was thrown into the market, at fluctuating and enhanced prices; so that the guinea, as compared with silver, varied from 20 to 28 shillings. This evil was not arrested until the third year of George I. (1717), when, upon the recommendation of Sir Isaac Newton, then Master of the Mint, the guinea was rated at 21 shillings, and has so continued ever since.

The pound sterling had therefore no representative in any single coin, until the great era in British moneys, the coinage law of 1816. The guinea and its parts were then discontinued, and the *sovereign*, of 20 shillings, with subdivisions, substituted. The relative proportion of weight and value being preserved, the guinea continued to circulate, at 21 shillings, though it ceased to be coined.

In the same year, an alteration was effected in the silver coinage. The denominations, from the *crown* downwards, were maintained as before; but the old series was called in, and recoinced at a reduced weight. The profit to government by this operation was not so much the object in view, as to give to the silver coinage a less intrinsic value than the gold, and thus to make the latter the only measure of value; the former to be used merely for making change, in the domestic circulation.† Silver coins are a legal tender only to the extent of 40 shillings at a time.

Before proceeding to state in detail the legal regulations of the coin, a few general observations upon the metallic currency of this empire, may be in place.

A very prominent and peculiar feature, is the vast preponderance of the gold over the silver coinage; and this, for a century before it became the settled policy of the nation. The causes which operated to produce this result, could not be explained in a work like the present. We only notice the fact, that from the accession of Queen Anne (1702) to the end of 1840, the gold coinage amounted to 160 millions sterling, while that of silver was but 12½ millions.‡ For the last twenty years, ending with 1840, the coinage of gold was 52 millions nearly, and of silver 4 millions. In every other country, the preference seems to be given to silver, as the specie basis, whether gold is a concurrent legal tender or not.

In general, it is noticed that a country does not recoin its own money, except upon a change of standard. A memorable exception took place in England, in 1774. The

* Ruding's Annals of the British Coinage.

† This policy was brought before the public, eleven years before (1805), by Lord Liverpool, in his Treatise on the Coins of the Realm.

‡ Statistics of the coinage will be found in the Appendix.

unskilful style in which, confessedly, the gold coins had for a long time been executed, exposed them to the nefarious arts by which coins are diminished in weight. From these causes, as well as from ordinary wear, the circulation had become so depreciated, that it was judged necessary to call in all the gold coins below a certain weight, and recoin them, at the full standard. To this effect, an Act of Parliament was passed in that year, providing also for making good the deficiency to holders of light coin, from the public treasury. This famous recoinage commenced in that year, and appears to have been in progress until 1788.*

Another memorable event, in the monetary history of England, was the total suspension of silver coinage, at the Mint, from 1788 to 1816—a period of twenty-nine years; and that at a time when such coin was never more needed. The reason was simply that silver was not valued high enough by law, in proportion to gold, and therefore went to the market instead of the Mint. This, in its turn, was brought about by various causes, not the least of which was the policy of the French Republic, which exchanged *assignats* for silver, wherever it was to be had. In the single year of 1792, there was drawn away from England near three millions of ounces.†

There was an obvious remedy for this evil, but the times did not admit of its application. So far from it, the scarcity of silver was only a precursor to a similar scarcity of gold. In the protracted wars of Europe, of which England had her full share, there was a continual necessity for remittances abroad, by the government. These were almost wholly in bullion, and were procured from the Bank of England. In 1797, the drain of specie had been carried to such an extent, that only a million and a quarter sterling remained in the vaults of that Institution, and a suspension of specie payments was the necessary consequence. This suspension continued until 1821.

Until the general pacification of Europe, there was no opportunity for reforming the monetary code, and establishing it upon a firm basis. Meanwhile the silver coinage, the need of which was most urgently felt for the smaller purposes of traffic, was supplied in a semi-legal way, by the issue of *Tokens*. In 1804, the Bank of England, with the approbation of his Majesty's Council, effected a recoinage of two millions of Spanish dollars, at the Mint of Mr. Boulton, near Birmingham. The pieces were stamped with appropriate devices, with a valuation of five shillings. The Bank of Ireland resorted to the same expedient, making the dollar a token for six

* The whole coinage, 1774 to 1788, was 18½ millions sterling; probably three-fourths of this was recoinage. The deficit of weight was an expense to the government of a little over half a million. Ruding, vol. i.

† Marsh, quoted by Ruding, ii. 499. These assignats, or state bonds, were founded upon the landed property taken from the clergy. In five years, the issue amounted to 36,000 millions of francs. Eventually they were received at one-seventieth of their nominal value, in payment for public lands. Thiers's French Revolution.

shillings Irish.* By Act of Parliament of the same year, these issues were so far legalized as to make it felony to counterfeit them.

As these larger pieces did not supply the deficiency, smaller ones were issued subsequently by the Banks, and by local corporations; and as will presently appear, at an increased reduction of real value. In 1805, the Bank of Ireland issued pieces of ten pence, and five pence, coined from dollar silver, professedly at the rate of 65 pence to the dollar. In 1811, the English country banks, and mercantile houses, put in circulation their own shillings and sixpences; and from the same year to 1815, the currency was further supplied by tokens of 3 shillings, and $1\frac{1}{2}$ shillings, from the Bank of England.† The Bank tokens, and doubtless the others also, were eventually redeemed at the prices stamped upon them.

During all this period, the gold coinage was carried on at intervals, but in very reduced amount.‡

In 1816, peace having been re-established, and trade restored to its due course, the state of the coinage was made a subject of legislation, and, as already observed, important changes in both the gold and silver coin, were provided by Act of Parliament.

Dr. Kelly remarks, that—"In the history of the English Mint, the coinage of 1816 will be memorable, not only on account of the important alteration then made in the monetary system, but also for the great accommodation afforded to the public. Thus, after a long period of disorder in the currency, the new silver coins were exchanged for the old, on very liberal terms; and although they amounted to several millions of pounds sterling, the exchange was effected simultaneously throughout the kingdom. The supplies too, from the Mint, have been since continued, to all parts of the British dominions, with a degree of regularity and despatch, unknown at any former period."§

The following are the legal rates of coinage, before and since 1816.

From a pound troy of gold, 22 carats or $916\frac{2}{3}$ thousandths fine, $44\frac{1}{2}$ guineas were coined; and since 1816, $46\frac{2}{3}$ sovereigns; the various divisions or multiples being in proportion.

From a pound troy of silver, $11\frac{1}{16}$ parts in 12 fine, or 925 thousandths, 62 shillings were coined; under the new system, 66 shillings; other denominations in proportion.

* It is stated by Ruding, that the silver coins in Ireland had by this time become so light, that 21 shillings were not intrinsically worth more than nine. As 12 pence English are equal to 13 pence Irish, the dollars of the Bank of Ireland "went farther" than those of the other institution.

† This system of tokens began with copper, in 1788, in default of lawful coinage. Ten years after, the private coinage of copper was arrested.

‡ A new Mint was erected in London, between the years 1806-10. In Ruding's Annals, iii. 523, it is stated that the cost of the premises was £7,062, cost of building and machinery, £261,978: Total, £269,040.

§ Kelly's Cambist. Intro.

This advance is equal to $6\frac{1}{2}$ per cent, upon the old coinage. The new coins, being rated higher than the market price of silver, are effectually kept within the realm; occasional specimens only finding their way abroad.

From the above rates, it is found that the full weight of the guinea is $129\frac{1}{2}$ grains, and the sovereign, $123\frac{1}{3}$ grains. But if the former weigh 123, or the latter $122\frac{3}{4}$, they are still a legal tender, at their nominal rates. The full weight of the old crown, is $464\frac{1}{2}$ grains, and of the new, $436\frac{1}{3}$ grains.* The crown is equal to five shillings, or 60 pence.

The remedy of the Mint, or allowed deviation, is, for gold, 12 grains per lb. in weight, and $\frac{1}{16}$ carat in fineness; for silver, 1 dwt. per lb. in weight, and $\frac{1}{100}$ th part in fineness.

Great Britain prescribes distinct systems of coinage for her numerous colonies, of which notice will be taken, under the heads of *Guiana*, *Hindustan*, *Mauritius*, *Sierra Leone*, and *West Indies*.

England should now be ranked among the silver producing countries, since the recent improvement in parting argentiferous lead ores. By the process of Pattinson, three ounces of silver in a ton of lead, will pay the expense of its extraction. This proportion is about one part in ten thousand. England and Scotland raise annually from 35,000 to 40,000 tons of lead, or about four-sevenths of the whole produce of Europe. In one year (1835) the argentiferous lead, containing about $3\frac{1}{2}$ ounces per ton, yielded 140,000 ounces of silver. In the same year, the amount of 36,000 ounces was raised in Cornwall, from silver ores; making the whole production 176,000 ounces, worth, if fine, about 227,000 dollars.†

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|--------------------|-----------|-------------|-----------------|---------------------|--------------------|
| Guinea . . . | 1719 | George I. | 127 | 914 | 5 00 |
| do. . . . | 1727-60 | George II. | 127 | 915 | 5 00 5 |
| Five guineas . . . | 1729 | do. | 644 | 913 | 25 32 2 |
| Guinea . . . | 1760-85 | George III. | 127·5 | 915·5 | 5 02 6 |
| do. . . . | 1785-1809 | do. | 128 | 915·5 | 5 04 6 |
| do. . . . | 1813 | do. | 128·3 | 915·5 | 5 05 9 |
| Seven shillings . | 1806-13 | do. | 42 | 915·5 | 1 65 6 |

* The fractions are not extended to an arithmetical nicety.

† Ure's Dict. Arts. Mines, &c., London, 1839.

GOLD COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-----------------|---------|-------------|-----------------|-------------------|--------------------|
| Half guinea . . | 1801-13 | George III. | 64 | 915·5 | 2 52 3 |
| Quarter do. . . | 1762 | do. | 32 | 915·5 | 1 26 2 |
| Sovereign . . . | 1817-20 | do.* | 122·5 | 915·5 | 4 83 |
| do. | 1820-29 | George IV. | 122·7 | 915·5 | 4 83 8 |
| Half do. . . . | 1820-29 | do. | 61·2 | 915·5 | 2 41 3 |
| Double do. . . | 1826 | do. | 246·5 | 915·5 | 9 71 9 |
| Sovereign . . . | 1831-36 | William IV. | 123 | 915·5 | 4 85 |
| Half do. . . . | 1831-36 | do. | 61·3 | 915·5 | 2 41 7 |
| Sovereign . . . | 1838-39 | Victoria. | 123·3 | 915·5 | 4 86 1 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|----------------|---------|-------------|-----------------|-------------------|--------------------|
| Shilling . . . | 1721-23 | George I. | 87 | 930 | 21 8 |
| Half crown . . | 1745-46 | George II. | 218 | 930 | 54 6 |
| Shilling . . . | 1727-46 | do. | 90 | 930 | 22 5 |
| do. | 1787 | George III. | 92 | 926 | 22 9 |
| Half crown . . | 1817-19 | do. | 215 | 930 | 53 9 |
| Shilling . . . | 1816-17 | do. | 86 | 934 | 21 6 |
| Sixpence . . . | 1817-20 | do. | 43 | 930 | 10 8 |
| Crown | 1822 | George IV. | 435 | 930 | 1 09 |
| Half crown . . | 1820-26 | do. | 216 | 930 | 54 1 |

* The gold coins are remarkably uniform in fineness, but below the legal standard, about one thousandth. In weight, as they are found in circulation, 1000 sovereigns will vary from 5111 to 5124 dwts. The par value of the pound sterling is therefore \$4 84 as near as may be; and our dollar is equal to 49·6 pence. Sterling gold is worth 94·6 cents per dwt.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------|---------|-------------|-----------------|---------------------|--------------------|
| Shilling . . . | 1820-29 | George IV. | 86.5 | 930 | 21 7 |
| Half crown* . . | 1836 | William IV. | 216 | 930 | 54 1 |
| Shilling . . . | 1831 | do. | 87 | 930 | 21 8 |
| do. | 1838-40 | Victoria. | 87 | 925 | 21 7 |
| Sixpence . . . | 1838 | do. | 43 | 925 | 10 7 |
| Fourpence† . . | 1838 | do. | 29 | 925 | 7 2 |

We have not included the *Tokens* in the above table. They possess now no commercial importance, but for the sake of their historical interest, and for the gratification of those who retain them as specimens, a few particulars are annexed.

They are evidently coined from dollar silver, being of the fineness of 896 to 901 thousandths. The following varieties have been examined here.

| DENOMINATION. | DATE. | BY WHOM ISSUED. | WEIGHT. GRS. | VALUE. D. C. M. |
|----------------------|---------|------------------|-----------------|--------------------|
| 5 shillings . . . | 1804 | Bank of England. | 411 | 99 7 |
| 6 shillings Irish . | 1804 | Bank of Ireland. | 409 | 99 2 |
| 30 pence Irish . . | 1808 | do. | 190 | 46 |
| 10 pence Irish . . | 1813 | do. | 53 | 12 8 |
| 3 shillings . . . | 1811-12 | Bank of England. | 228 | 55 2 |
| 1 shilling 6 pence . | 1812-15 | do.† | 115 | 27 7 |

* The almost uniform result of 930, being 5 thousandths higher than lawful standard, is found by humid assay. The old method of assaying silver is said to be still in use in the British Mint; but the fineness seems to be falling to a humid standard.

† There are lower denominations of threepence, twopence, 1½ pence, and penny, which are coined for royal distribution, and are called *maundy money*.

‡ Besides which there were numerous shillings issued in 1811 by the country banks, and by merchants of Bristol, York, and other places, weighing from 60 to 68 grains, and worth 14½ to 16½ cents.

BRUNSWICK.

Braunschweig.

To avoid confusion in the examination of Brunswick moneys, the reader will bear in mind that the ancient dominion of that name has, for the past three centuries, been divided into the two sovereignties of Brunswick and Hanover; but it is only within a few years that the King of Hanover has removed the title of "Brunswick and Luneburg" from his coins, and substituted the former. For a proper understanding of the distinction between the two houses, see the article *Hanover*.

GOLD COINS. There seem to have been no ducats coined in Brunswick, for more than a century past.

In 1742, the coinage of double, single, and half pistoles, (rated at 10, 5, and $2\frac{1}{2}$ *thalers*,) was established at the standard weight of 35 pistoles to the Cologne mark, $21\frac{2}{3}$ carats fine. It is probable that the standards have since been slightly reduced, as in Hanover the rate is $35\frac{1}{2}$ to the mark, and the Brunswick pieces show no difference of weight. The fineness also, which in the last century was $21\frac{2}{3}$ carats, or 903 thousandths, has for many years been no higher than 896.

The ten-thaler pieces find their way to this country in considerable quantities, and are frequently recoinced at our mint. As Brunswick is a state of only 250,000 inhabitants, and without a large commercial city, this fact seemed remarkable, until it was ascertained that the gold coinage is not effected on behalf of the state, but of bankers at Hamburg and Bremen, who send their bullion to the mint at Brunswick. Its reaching the United States is accounted for by the fact that German emigrants, embarking at one or the other of those cities, generally change their funds from the interior, for such as are current at the port; which latter are brought over.*

SILVER COINS. The standard of the German Convention of 1753, was adopted in Brunswick about ten years after. Ten *species thalers* were coined from a mark of fine silver; or $3\frac{1}{3}$ thalers to the mark, alloyed to $13\frac{1}{3}$ loths. In our terms, this is a weight of $433\frac{1}{3}$ grains, and fineness of 833 thousandths. The half and quarter thaler (called also the $\frac{2}{3}$ and $\frac{1}{3}$ piece, being those parts of the thaler *of account*) were of proportional weight, and of the same fineness. Besides these coins, there have been issued at various times, the florin, or $\frac{2}{3}$ piece of the Leipsic rate; sometimes of fine silver, and sometimes only three-fourths fine; the weight being so proportioned as to contain 200.5 grains fine. Thus there are three florins, or $\frac{2}{3}$ pieces; the first is the half thaler of the convention, the other two are the fine and base florins of the

* For information on this and other articles, we are indebted to the correspondence of JOHN CUTHBERT, Esq., U. S. Consul at Hamburg.

Leipsic rate. The former is worth $43\frac{1}{2}$ cents, the latter two 54 cents, in our money. Pieces of $\frac{1}{2}$ and $\frac{1}{4}$ of the thaler, and of one *marien-groschen*, 6 pfennigs and 4 pf. constitute the *scheidemünze*, or small coin of the duchy. A convention-florin is equal to 24 mar. gros. of 8 pfen. each.

Brunswick, although not represented in the German mint-convention of 1833, has since acceded to the regulations then adopted. (See article *Germany*.) Rixdollars, of 14 to the fine mark, have been issued recently.

The silver mine of Rumelsberg, near Gosslar, is the joint property of Brunswick and Hanover. Its annual product is about 10 marks of gold, and 4000 marks of silver.

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|----------------|---------|-------------------------------------|-----------------|---------------------|--------------------|
| X Thaler . . . | 1745 | Charles. | 202 | 898 | 7 81 2 |
| V do. . . . | 1748-64 | do. | 102 | 903 | 3 96 6 |
| X do. . . . | 1805 | Charles William Ferd. | 204 | 896 | 7 87 2 |
| do. . . . | 1813-14 | William Frederic. | 204.5 | 896 | 7 89 1 |
| do. . . . | 1818-19 | George, Regent, in name of Charles. | 204.5 | 896 | 7 89 1 |
| do. . . . | 1824-30 | Charles. | 205 | 896 | 7 91 |
| do. . . . | 1831-38 | William. | 205 | 894 | 7 89 3 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-------------------------------|-----------|-----------------------|-----------------|---------------------|--------------------|
| Florin | 1704 | Anthony Ulrich. | 201 | 997 | 54 |
| Species thaler . | 1764 | Charles. | 428 | 833 | 96 |
| Half do. . . . | 1764 | do. | 215 | 833 | 48 2 |
| Florin (Leipsie.) | 1764 | do. | 198 | 997 | 53 2 |
| $\frac{1}{4}$ th Thaler . . . | 1764-75 | do. | 78 | 564 | 11 8 |
| Species thaler . | 1790 | Charles William Ferd. | 428 | 833 | 96 |
| Florin | 1789-1800 | do. | 263 | 750 | 53 1 |
| $\frac{1}{4}$ th Thaler . . . | 1780-92 | do. | 78.5 | 561 | 11 9 |
| do. . . . | 1831 | William.* | 88 | | |
| Thaler | 1838 | do. | 343 | 750 | 69 3 |

* Not assayed.

B U R M A H.

THERE are no coins struck in the Burman kingdom. Silver is paid by weight; and for the purposes of small change, lead is used, also by weight; the usual value of which is estimated as the $\frac{1}{100}$ th part of silver. The silver is melted into small cakes, from four to twenty *ticals* in weight; and these are cut into bits, as occasion may require. The fineness is not well ascertained, and is no doubt very irregular. There are, however, three kinds of alloy familiarly known; the basest is said to be three-fourths silver; the next, called *huet-nee*, or "flower silver," is known by a crystallized appearance on the surface, near the centre of the cake; this is rated 15 per cent. better than rupee silver of Hindustan. A third kind, called *dyng*, on which the crystallization is more spread over the disk, is considered five per cent. better than *huet-nee*. When a customer is making a purchase, the merchant asks to see what sort of silver he is going to pay in, and sets his price accordingly.

Gold is not used as currency; all that can be obtained is employed in the manufacture of jewelry and gilding of temples.

The late King of Burmah attempted to introduce a coinage of silver, by the aid of British machinery; but such an excessive value was attempted to be set upon the coins, that the people could not be prevailed on, even with violent measures, to adopt them in trade.*

At Rangoon, the principal seaport, the tical weighs 250 troy grains; at Pegu, it is 13 grains less.†

C E N T R A L A M E R I C A.

Republica del Centro de America.

THIS country, long a colony of Spain, declared itself independent in 1821. It was united to Mexico, during the ascendancy of Iturbide, but became a distinct government in 1823. The earliest of its coinage, as seen here, is dated 1824.

* The above is collected from Rev. H. Malcom's Travels in S. E. Asia, a valuable work recently published at Boston. We should observe, that as rupee silver of Hindustan is itself near 92 per cent. fine, there is no room for an additional 15 per cent.; this valuation of the *huet-nee* must therefore be merely commercial.

† Kelly's Cambist.

The monetary system continues the same as that of the mother country. (See *Spain*.) The mint is at the capital, New Guatemala, to which the initials N. G. on the coin refer.

The coinage is unimportant, in a commercial view; specimens rarely appear here. The country, however, is productive of the material for coining; the value of one and a half millions of dollars, in gold and silver, having been raised in five and a half years, ending June 1825.*

The doubloons, as late as 1833, weigh 417 grains, and may be rated at 833 thousandths fine, which is greatly below their proper standard. They are worth therefore only \$14 96.

The dollars, 1824-36, average 415 grains in weight, and 896 thousandths fine; value 100·1 cents.

CHILI.

Chile.

This country was a dependency of Spain until 1817, when it became a republic. The earliest patriot coinage bears date the same year.

The system of coinage is the same as that received from Spain. The mint is at Santiago; the mint-mark on the coin being an S, surmounted by a small *o*.

Although this country is rich in mines of gold and silver, the coinage is unimportant. Silver is chiefly exported in the shape of bullion, which is an opposite policy to that of Mexico. Few of the dollars, and none of the fractional parts, are seen here.

The coinage of gold and silver, previous to 1820, averaged about one million of dollars annually; the gold being about twice as much as the silver. Since that time, the average has fallen to \$200,000 yearly, only one-fifth of which is in silver. The export of silver bullion, in 1836, was about \$350,000.†

The doubloons vary in weight about four grains, but their average is that of doubloons generally, say 417 grains. The pieces from 1819 to 1834, with the legend "Estado de Chile," are 367 fine, and worth \$15 57. Those of 1835 and since, with the title "Republica de Chile," are 372 fine, and therefore worth \$15 66.

The dollars are tolerably accurate in weight, ranging from 411 to 418 grains, averaging 414. The fineness is unusually high, varying from 905 to 911 thou-

* Thomson's Narrative.

† See further statistics in the Appendix.

sandths. They may be averaged at 907, and are therefore worth 101 cents. The dates examined here are from 1817 to 1839. A specimen of the latter date, very recently received, shows an alteration in the devices of the coinage, but none in the standards and value; the weight of the piece being 412 grains, and the fineness 908 thousandths; equal to 100.7 cents.

CHINA.*

WHILE every other nation upon earth regards a distinctive coinage as its sacred prerogative, and as one of the clearest assertions of sovereignty, the Celestial Empire is content to supply, with its tokens of brass, the meaner purposes of trade, and leave to private artisans and "outside barbarians" the nobler duty of furnishing a currency for large operations. The only coin which the emperor strikes, is that called by the Chinese *tsien* or *tong-t sien*, by the Portuguese *kava*, and by the English *cash*. It is a composition of brass,† about an inch in diameter, with a large square hole in the centre. By this perforation the pieces are strung in parcels of a hundred, for the convenience of counting, as also of carrying. The respective mints, where these are coined, are distinguished by an appropriate character on the reverse, in the Manchu writing. On the obverse are four Chinese characters, giving the emperor's name, or one of his names, and the words *tong pao*, signifying "current money."‡ The older pieces weigh about 44 grains; the modern ones average 68. Those of *K'ia-king*, who reigned from 1795 to 1820, as well as those of *Tau-kwang*, his son and successor, now reigning, have the appearance of being cast in a mould. They were formerly reckoned at 1000 to the tale or *leang* of fine silver; but of late years, probably through over-issue, their value has declined to 1200 or 1300 per tale. This last is the integral money of account, being equal to 580 troy grains. In fine silver, it is equivalent to 156.2 cents; in dollar silver, about 140 cents. Hence we may say, that about 800 *cash* are equal to a Spanish dollar.

The tale is subdivided decimally; ten *candareens* make a *mace*, and ten *mace* make a *tale*.

The Chinese freely receive foreign silver coins of established character, especially

* *Chon-ku*, or "centre of the world," is the title (says Malte-Brun) by which the Chinese designate their own country.

† According to Bonneville, the alloy is six parts of copper and four of lead. In Marsden's *Numismata Orientalia*, it is stated to be a mixture of copper and zinc.

‡ Marsden, art. China.

the pillar and Mexican dollars. It has been and probably still is customary for each merchant to stamp the piece with his own mark, as it comes into his hands. Some of these which have passed through many such operations, have found their way here; they are strangely mangled and disfigured, and scarcely leave a trace of the original impressions. The coins are also cut into bits, for the convenience of change.*

Merchants usually carry steelyards, called *dotchin*, for the purpose of weighing coins and precious metals.

There is still a third species of currency, consisting of small bars or ingots, of gold or silver, of all sizes, from one half to one hundred taels. These ingots from their peculiar shape are called by the English traders a *shoe*, and by the Dutch, *schuit*, or "boat," as in Japan. They appear to have been melted in an oval crucible, and cooled gradually, so that the metal, sinking in the centre, leaves a considerable cavity in the upper surface.

The Chinese are known to be very expert in judging of the fineness of metals, especially of silver, merely by handling. Passing a parcel of dollars through his fingers, a skilful cambist separates between the good and bad with astonishing rapidity and accuracy.† M. Bonneville affirms that they are no less expert in the art of *pickling* their gold bars, or giving them the appearance of nearly fine gold, by plunging in nitric acid. He observes that in his time (1806), nearly all the ingots of gold from China and India were thus treated. Some specimens, which appeared to be about 930 thousandths fine, proved upon assay to be only 750 to 833.

Their notation of fineness is centesimal; that is, they represent fine metal (which they call *sycee*) by 100 *toques* or *touch*, and alloys are stated proportionally. Old Spanish dollars (now seldom seen) are rated at 92 *touch*; the new, at 90.

Two of the silver *shoes*, received here lately, weighed $5\frac{1}{2}$ ounces and 60 ounces respectively, and were 932 thousandths fine. This would doubtless be considered in trade as *sycee* silver.

* The same has been practised in the West Indies, and in our own country.

† Parcels of condemned dollars have sometimes been brought to this mint from China, to have their precise value ascertained. As an example, we may mention a small lot of 22 pieces; one only of these was a good dollar; another was worth 80 cents; twelve pieces were worth about 50 cents each; the remainder various, but much baser. Some of them were well executed, and likely to deceive.

COCHIN CHINA.

A SILVER coinage is struck in this country, which may easily be mistaken for Chinese. On one side are four characters, the same as on some of the Chinese *cash*, and on the other side is displayed the dragon of China. A specimen is shown in Plate XVI., No. 15. There are two denominations; one weighing 423 grains, the other 214, doubtless meant for half of the former. We have not been able to procure pieces for assay. The specific gravity of the larger piece, as tried here, was 9.72, and of the smaller 9.85;* consequently they are about three-fourths fine, and the whole piece is worth 85 cents.

As Spanish dollars are current in this country, it is possible this larger coin is meant for a substitute, being a little over the dollar weight. In fineness it is very deficient.

COLOMBIA.

This country formerly consisted of the vice-royalty of New Granada, and the captain-generalship of Venezuela, both under the dominion of Spain. In 1819, the two governments, having declared independence, were united under the name of Colombia. The nation was freed from royal authority, after a struggle which terminated in 1822. In 1831 the union was dissolved, and the country was divided into the three republics of Venezuela, New Granada, and Ecuador. As in the present work it would be too minute to follow up these subdivisions, the coinage of the whole region will be treated under the present head; especially, as none of the coins of Venezuela since that dismemberment, and but a few gold pieces of Ecuador, have reached us. Moreover, the title of Colombia has been retained on the coins of New Granada up to the year 1836 inclusive.

The mints of Bogota and Popayan have been long established; that of Quito seems to have been created since the disunion. During the revolution, there was also a mint at Caraccas. The coinage is distinguished, in the three former cases, by

* For an examination of these and other rare specimens of Eastern coinage, we are indebted to W. G. STEARNS, Esq. of Boston, an amateur collector of coins, whose valued correspondence we are happy to acknowledge in this place.

This coinage must have originated since 1824, as neither Marsden nor Kelly take notice of it.

the name of each mint in full, on gold pieces. This distinction is essential, as to the character of the coin; as will be seen by the tables.

The doubloons and their fractions are more frequently seen in this country, or at least at this mint, than any other of the class usually called "patriot." They are pretty regular in weight; the Bogota coinage having a slight preference in this respect. In fineness, the doubloons of Popayan are decidedly inferior, as has been established by repeated trials, upon large amounts. The divisions of this doubloon, especially the escudo, or one-eighth, and its half, are still lower in fineness, and very irregular in weight. But the lowest grade of fineness is found in the coins of Ecuador.

Here it may be remarked, that although all doubloons generally command a premium in commerce, sufficient to divert them from recoinage at the mint, yet the money market is sometimes in such a state as to send them hither very freely. In the first six months of 1838, there was received here about \$300,000. The royal doubloons are more in estimation, but, by reason of wear, have really a less intrinsic value by talc. (See *Spain*.)

The dollars of Colombia are scarce in this quarter; but their extraordinary fluctuations require particular notice.

Before 1822, the silver coinage presented a confused and anomalous series, unfit to be ranked with the same class in other parts of Spanish America. The troubled state of the country seems sufficient to account both for the irregularity and debasement which the coins of that epoch betray. From 1822 to 1834, both dates inclusive, no specimens appear; but in 1835 a new dollar with new devices was issued, superior in weight and fineness to any other, though evidently meant to be modelled after the Spanish standards. Finally, in 1839, a third dollar appears, bearing on its face a valuation (like the rest) of eight reals, and a *lei* of eight dineros, or two-thirds fine.

At Caraccas, down to 1821, there was issued a coin of rude workmanship, marked 2 reals. This was of course intended to be one-fourth of the dollar, but the connexion is not well maintained. In the years 1829-30, there were also coined at the same place, pieces of one-fourth real, or $\frac{1}{4}$ part of a dollar.

Colombia has long been known as a gold region; it has also some silver, but thus far of little importance. For a long series of years, prior to 1801, the annual produce of gold was two and a half millions of dollars. In later times there has been a falling off, but to what extent is not known. A considerable share of its gold-dust comes to this mint, and is marked by the presence of platinum. The amount of coinage, at the mint of Bogota, from 1810 to 1825, (sixteen years,) was \$16,132,000 in gold, and \$275,000 in silver; at Popayan, in three years ending 1825, \$2,079,000

in gold, and \$40,000 in silver.* Probably this will afford some idea of the amount of the precious metals raised in the country. The export of specie and bullion, chiefly gold, from the port of Carthagena, was \$1,700,000 in 1837. (See Plate III.)

GOLD COINS.

| DENOMINATION. | DATE. | STATE. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|----------------------------|---------|------------------------|-----------------|-------------------|--------------------|
| Doubloon of 8 Escudos | 1823-36 | Colombia. Bogota mint. | 416·8 | 870 | 15 61 7 |
| do. . . | 1823-36 | do. Popayan do. | 416·5 | 858 | 15 39 |
| $\frac{1}{3}$ th do. . . | 1823-36 | do. Bogota. | 104 | 865 | 3 87 4 |
| $\frac{1}{8}$ th do. . . | 1823-36 | do. do. | 51 | 865 | 1 90 |
| do. do. . . | 1823-36 | do. Popayan.† | 51 | 852 | 1 87 1 |
| $\frac{1}{16}$ th do. . . | 1823-36 | do. Bogota. | 25·5 | 852 | 93 6 |
| do. do. . . | 1823-36 | do. Popayan. | 25·5 | 852 | 93 6 |
| Doubloon . . . | 1837 | New Granada. Bogota. | 416·8 | 870 | 15 61 7 |
| Half do. . . . | 1836 | Ecuador. Quito. | 209 | 844 | 7 59 6 |
| $\frac{1}{4}$ th do. . . . | 1835 | do. do. | 104 | 844 | 3 78 |
| $\frac{1}{8}$ th do. . . . | 1835 | do. do. | 51 | 844 | 1 85 4 |

SILVER COINS.

| DENOMINATION. | DATE. | STATE. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|----------------------------|---------|--------------------------|-----------------|-------------------|--------------------|
| Dollar, of 8 reals . . | 1819-21 | Colombia.‡ | 363 | 730 | 71 4 |
| do. . . . | 1835-36 | do. Bogota mint.§ | 417 | 910 | 1 02 2 |
| do. . . . | 1839 | New Granada. do. | 356 | 680 | 65 2 |
| 2 reals | 1815-21 | Caraccas & Cundinamarca. | 74 | 690 | 13 8 |
| $\frac{1}{4}$ real | 1829-30 | Caraccas. | 8·5 | 795 | 1 8 |

* Jacob's Inquiry, &c. chap. xxv.

† These vary in fineness from 849 to 854 thousandths, and in weight, from 44 $\frac{1}{2}$ to 61 $\frac{1}{2}$ grains. Such irregularity in weight is almost unparalleled.

‡ This dollar varies from 707 to 770 in fineness; in weight, 343 to 382 grains. The mint-allowance was truly *a la Turque*.

§ These vary from 907 to 917 in fineness.

|| Vary from 59 to 82 grains in weight.

D E N M A R K.

THE coinage of this country is somewhat confused by three cotemporary systems of money, one for Denmark Proper, a second for the duchy of Holstein, and a third for Norway. Holstein is considered a part of Germany, though under the government of the King of Denmark; and before 1813, had its own suite of coins. Norway, formerly connected with Denmark, was assigned to Sweden in the year just named. Its coinage will be considered in a separate article.

The royal succession of late years has been as follows: Frederick V. came to the throne in 1746; Christian VII. in 1766; Frederick VI. in 1808, and Christian VIII., the reigning sovereign, in 1839.

The gold coins, previous to the reign of Frederick VI., were the specie ducat, of the German standards, the current ducat, seven-eighths fine, and the *Christiand'or*, at $21\frac{2}{3}$ carats, or 903 thousandths fine, and 35 pieces to the mark of Cologne, or 103 troy grains per piece. Since the remodelling of the moneys in 1813, the only gold coins are the double and single *Frederickd'or*, or pieces of ten and five thalers. Their legal fineness is $21\frac{1}{2}$ carats, or 896 thousandths, and the weight at the rate of $17\frac{3}{4}$ pieces of ten thalers to the mark, or 205 troy grains per piece.

The silver coins may be ranked in two classes; those prior to, and those since the monetary code of 1813.

First Class. The unit or basis was the old *species daler*, coined in each section of the monarchy. In Denmark it was reckoned at 96 skillings, in Norway at 120 skillings, and in Holstein at 60 schillings. Its legal standards were, 14 loths or 875 thousandths fine; in weight $8\frac{3}{4}$ pieces to the mark alloyed, equivalent to $9\frac{1}{4}$ to the mark fine; in our expression, 445·8 grains to the piece.* There were also pieces of one-half, two-thirds, and one-third, of the same fineness, and proportional weight; the two latter specially for Holstein, and designated as 40 and 20 schillings. The one-sixth piece was coined at 11 loths, (637 thousandths,) and at a weight of $38\frac{5}{8}$ pieces to the alloyed mark; the one-twelfth piece, 8 loths (500 thousandths) fine, and $55\frac{1}{2}$ to the mark; lastly, the one-twenty-fourth, at 6 loths (375 thousandths) and $83\frac{1}{4}$ to the mark.

Second Class. By a royal edict of 1813, a new integer for silver money was established, called the *rigsbank daler*, or dollar of the national bank, just half the weight and value of the species daler. This was equal to 96 new skillings; hence

* This rate is of long standing, having been established by Frederick I., who reigned A. D. 1523-33.

the lower denominations of 32, 16, and 8 rigsbank skillings, are equivalent to the $\frac{1}{4}$ th, $\frac{1}{2}$ th, and $\frac{3}{4}$ th pieces above named as of the old nomenclature.

By an edict of 1836, there were added to the coinage, the small pieces of 4, 3, and 2 skillings, of 250 thousandths fine. These are coined at $21\frac{1}{2}$ rigsbank dalers to the mark fine, and therefore yield a government profit of $13\frac{1}{2}$ per cent.

The coinage of the mint at Copenhagen from 1814 to 1838, (twenty-five years,) amounted to 5,252,700 rigsbank dalers, equivalent to \$2,757,700 in our money; an annual average of \$128,100. There was no coinage from 1827 to 1832, and none in 1836. The amount executed at the Altona branch has not been ascertained.* (See Plate X.)

The coinage struck for the Danish islands in the West Indies, will be noticed under that head.

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|----------------------|-----------|----------------|-----------------|-------------------|--------------------|
| Species ducat . | 1749 | Frederick V. | 53.5 | 988 | 2 27 6 |
| do. . . . | 1795-1802 | Christian VII. | 53.7 | 979 | 2 26 4 |
| Current do. . . | 1783 | do. | 48 | 876 | 1 81 1 |
| Christiand'or . | 1775 | do. | 103 | 905 | 4 01 4 |
| Double Frederickd'or | 1813-39 | Frederick VI. | 204.5 | 895 | 7 88 2 |
| Frederickd'or . | 1813-39 | do. | 102 | 895 | 3 93 2 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-----------------------------------|-----------|----------------|-----------------|-------------------|--------------------|
| Species daler . . | 1769-77 | Christian VII. | 444 | 875 | 1 04 6 |
| 60 schillings of Holstein | 1787-94 | do. | 444 | 878 | 1 05 |
| 40 schillings, or $\frac{2}{3}$. | 1787-97 | do. | 295 | 878 | 69 8 |
| 20 schillings, or $\frac{1}{3}$. | 1788-1808 | do. | 148 | 878 | 35 |
| 10 schillings, or $\frac{1}{6}$. | 1787-89 | do. | 93 | 670 | 16 8 |

* In the preparation of this article we are chiefly indebted to the correspondence of C. J. HAMBRØ, Esq., U. S. Consul at Copenhagen.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-----------------------------|-----------|----------------|-----------------|-------------------|--------------------|
| $\frac{1}{2}$ Sp. daler . . | 1798-1801 | Christian VII. | 113 | 670 | 20 4 |
| Sp. daler . . | 1837-39 | Frederick VI. | 445 | 877 | 1 05 1 |
| Rigsbank daler . | 1813-39 | do. | 222.5 | 877 | 52 6 |
| 32 skillings . . | 1820 | do. | 93.5 | 692 | 17 4 |

EGYPT.

Misr.

THIS country, once a great empire, was reduced to the condition of a Turkish province in 1517, and has so remained ever since. At the present day, under the vigorous administration of the Pacha Mehemet Ali, its dependence upon the Ottoman power is scarcely more than nominal. Egypt has its own system of money, bearing no relation to that of Turkey.

GOLD COINS. As long ago as 1703, in the reign of Achmet III., the *sequin fondoukli* was the same at Constantinople and Cairo, and intended to be equal to the European ducat. In 1730, the Cairo sequin fell considerably both in weight and fineness, and, as will appear in the annexed tables, continued to grow worse in the latter respect. Under the present pacha the coinage is brought to a well adjusted system, contrasting advantageously with that of the mother country, and of the sister provinces south of the Mediterranean. The gold coins are of five denominations, viz. 100, 50, 20, 10, and 5 piastres. The last two or three of these seem inconveniently small. The principal coin is nearly equal in value to our half-eagle: hence the Egyptian piastre, in gold, is worth five cents.

SILVER COINS. In 1801, the piastre of Cairo was worth 20 cents of our money; less than that of Constantinople, which was 26 cents. Under the new system of Mehemet Ali, which is based upon the Austrian standards, the *real*, equivalent to the Austrian rixdollar, or 97 cents, is rated at 20 piastres; making the silver piastre worth 4.85 cents.* There are six denominations of silver coin; 20, 10, 5, 1, $\frac{1}{2}$, and $\frac{1}{4}$ piastre.

* For duplicate specimens of the new Egyptian coinage, from which the assays are made, as also for information concerning them, we are indebted to the attentions of JOHN P. BROWN, Esq., late drogoman to the United States legation at Constantinople.

The *ghersh* (piastre) is the integer, or unit, of the moneys; it is divided nominally into 40 paras. (See Plate XV.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|---------------------------|-------------|---------------|-----------------|-------------------|--------------------|
| Sequin fondoukli . . . | 1115 (1703) | Aehmet III.* | 53 | 958 | 2 18 7 |
| do. | 1143 (1730) | Mahmoud I. | 39 | 940 | 1 57 9 |
| do. | 1143 | do. | 39 | 848 | 1 42 4 |
| do. | 1171 (1757) | Mustapha III. | 39 | 781 | 1 31 2 |
| do. | 1187 (1773) | Abdul Hamed. | 39 | 786 | 1 32 |
| do. | 1187 | do. | 39 | 645 | 1 08 3 |
| do. | 1203 (1789) | Selim III. | 39 | 690 | 1 15 9 |
| Half do. | 1233 (1818) | Mahmoud II. | 18 | 670 | 51 9 |
| Bedidlik, of 100 piastres | 1255 (1839) | Abdul Majeed. | 132.2 | 874 | 4 97 6 |
| Nusflik, of 50 piastres | 1255 | do. | 66.1 | 875 | 2 49 1 |
| Kairie Hashreen, 20 . | 1255 | do. | 27 | 874 | 1 01 7 |
| Kairie Bashireh, 10 . | 1255 | do. | 13 | 874 | 48 9 |
| Cataa Hamsee, 5 . | 1255 | do. | 6.7 | 874 | 25 2 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|--------------------------------------|-------------|---------------|-----------------|-------------------|--------------------|
| Yirmilik, or $\frac{1}{2}$ piastre . | 1216 (1801) | Selim III. | 96 | 372 | 9 6 |
| Real, or 20 piastres . | 1255 (1839) | Abdul Majeed. | 430 | 836 | 96 8 |
| Nusf, or 10 piastres . | 1255 | do. | 215 | 832 | 48 2 |
| Ruba, or 5 piastres . | 1252 (1836) | Mahmoud II. | 107.5 | 850 | 24 6 |
| Gherh, or piastre . | 1255 (1839) | Abdul Majeed. | 21 | 842 | 4 8 |
| Ashreneah, or 20 paras | 1255 | do. | 10.5 | 843 | 2 4 |
| Ashereh, or 10 paras . | 1255 | do.† | 5.2 | | |

* The name of the sultan, not the pacha, appears on the coins. The first date given is that of the Hegira; the corresponding Christian year is in parentheses.

† Not assayed.

FRANCE.

IN taking a view of the coinage of this empire for the past century, it is seen to be marked by three epochs.

For some years previous to 1726 there was a remarkable confusion in the currency. Frequent changes were made in the coin, both as to the standards and valuation; the effect of which was a constant and prodigious depreciation of the *livre tournois*, the integral money of account. For example, the livre of 1689, which in fine gold corresponded to a weight of 60·4 centigrammes, and in fine silver to 7·43 grammes, was, after a series of reductions, brought down to one third of those quantities, in a space of only thirty-one years.* A reform became necessary; and in 1726, under Louis XV., a general recoinage took place, both of gold and silver, upon a new basis. This standard was steadily maintained for a long course of years. The silver coins remained unaltered until the Revolution; but in 1785 it was judged expedient to reduce the gold coin in weight, and it was accordingly called in, and recoinied at a new rate. These therefore are two of the epochs above noted; and it should be added, that when French crowns are now spoken of, they are understood as those coined upon the basis of 1726; louis'd'ors are those issued since 1785.

The third epoch was the Revolution; an unlikely occasion, apparently, for the developement of a cautiously devised system of coinage.† Nevertheless, it was in 1795, the year III. of the Republic, that the present admirable and permanent system was begun, although not consummated until eight years after. Its basis was no less a standard than the dimensions of the earth. First, the distance from the equator to the pole, which was ascertained by certain computations, being divided into ten million parts, gave the *metre*, or standard of long measure,—equal to 39·371 inches. Next, a cube of pure water, at the temperature of melting ice, measuring

* From 1689 to 1726 there were, in the gold coin, nine changes of standard or value; and as many in the silver coin. See Bonneville, art. *France*.

† The occasion would be thought peculiarly unfavourable, on remembering that the Ruling Powers of those days issued paper money called *assignats*, to the extent of 36,000 millions of francs, in the short space of five years. (See Thiers's *French Revolution*.) Nevertheless, it is well agreed by considerate men, that any thorough change in the standard measures of capacity and value, however judicious and desirable, can hardly be effected at any other time than during a grand political convulsion. The public are extremely reluctant to change their pounds and bushels, by which they are accustomed not only to measure, but to speak and think. Before our own Revolution, we had the cumbersome nomenclature of pounds, shillings, and pence, brought from the mother country; and although advantage was taken of our new political condition to introduce a decimal system of money, it required many years to accustom the people to the alteration. It was common to reduce dollars and cents to shillings and pence, before they could be well apprehended.

each way the hundredth part of this metre (called a *centimetre*), gave a certain weight, which was called the *gramme*. This was the standard of weight, and is equivalent to 15.435 troy grains. From this, finally, the *franc* was deduced, by a simple standard, to be stated presently. All these units of measurement were divided or multiplied decimally into other denominations, by which the system possessed completeness as well as simplicity.

The franc was at first equivalent to the livre; but as the old coinage became worn, their relative value was modified by law; first, at 80 francs for 81 livres; afterwards, in 1810, 58 francs were reckoned equal to 60 livres.

The livre was divided, in accounts, into 20 *sols*, or *sous*. The franc is divided into *centimes*, or hundredths; but it is common to rate 20 sous to the franc also.

The following are the legal standards of weight and fineness, during the period embraced in this view.

GOLD COINS. From 1726 to 1784, 30 louisd'ors were to be coined from a French mark weight, at 22 carats fine; with an allowance *under*, of 15 grains per mark, in the weight, and $\frac{1}{2}$ of a carat in fineness. In our terms, this was 125.9 troy grains to the louisd'or, less $\frac{1}{3}$ grain for allowance; and 916.7 thousandths in fineness, less 16 for allowance. The louisd'or was rated at 24 livres, or 4 crowns; the double and half pieces were proportional.

From 1785 to 1793, 32 louisd'ors were coined from a mark; which was 118 troy grains to each piece. The other standards as before.

From 1794 to 1802, there was no gold coin.

By the law of March 28, 1803, (7 *Germinal*, an. XI.,) which remains unchanged, 155 pieces of 20 francs, called *Napoleons* during the imperial reign, were coined from a *kilogramme*, or 1000 grammes, nine-tenths fine; with an allowance of two thousandths above, and the same below, both in weight and fineness. The double Napoleon, of 40 francs, was of proportional weight.

SILVER COINS. By edict of 1726, $8\frac{3}{4}$ *écus*, or crowns, were to be coined from a mark, at $\frac{1}{12}$ ths fine; remedy of weight, 36 grains per mark; remedy of fineness, three parts in 288. In our terms, this was 455.1 grains troy to each piece, less 3.5, *ad libitum*; and 916.7 thousandths in fineness, less 10. This piece was rated at six livres; the half-crown in proportion.

In 1774, smaller denominations of $\frac{1}{3}$ th, $\frac{1}{6}$ th, and $\frac{1}{12}$ th of the crown were added to the coinage.

In 1791, there were also added the pieces of 30 and 15 sols, at two-thirds fine, or 666.7 thousandths, with an allowance of 7 thousandths; the larger piece at the rate of $24\frac{2}{3}$ to the mark, in weight, less 36 grains per mark, or $\frac{1}{10}$ ths of a troy grain to the piece.

By decree of August 19, 1795, (28 *Thermidor*, an. III.,) the five franc piece and its

divisions were introduced, at the rate of 200 francs to the kilogramme, nine-tenths fine. The allowance of fineness was 7 thousandths above or below the standard; of weight, for the largest coin, 5 thousandths. Only the five franc piece, however, was coined until the law of 1803, when the denominations of two, one, one-half, and one-quarter franc were added, and the limits of fineness reduced to three thousandths above or below the standard of 900; so that the coins may not be lower than 897, nor higher than 903.

The improvements in the mint remedy, or system of allowances, deserve particular notice. A certain scope of deviation from the standards is necessary, since it is not possible to obtain precision, in working upon a large scale; but this scope should be narrowed, in proportion as the art of metallurgy attains greater perfection. Formerly the allowed deviation was *sixteen* thousandths in gold coins; but by the law of 1803, it was reduced to *four*, and in actual practice *three* is doubtless found sufficient. But there is another amelioration in the new system. The old remedy lay entirely *below* the lawful standard; that is, the coin must not be finer than 916 thousandths, but it might be as low as 900, and yet be lawful. This offered an opportunity for unfair alloying, which experience shows was not slighted. But the new remedy lies *on each side* of the legal standard, above as well as below; so that there is a tendency to maintain, on an average, the just medium.

These limitations, introduced with the *franc** system, have had the effect to give great uniformity to the French coinage. To insure their application, there is a rigid and complicated system of checks, to which the coins of all the mints are subjected.

Previous to the year 1772 there were no less than thirty-one mints in the French kingdom. At that date the number was reduced to eighteen. Twelve of these have since been discontinued, so that at present there remain only the mints of Paris, Bordeaux, Lille, Lyons, Rouen, and Strasbourg. The coinage of each mint may be known by its mint-mark or letter; that of Paris is the letter A; Bordeaux, K; Lille, W; Lyons, D; Rouen, B; and Strasbourg, BB.† Each coin has also another small mark or figure, such as an anchor, lion, caduceus, &c. to indicate under whose directorship it was issued.

France is famous for the amount of her specie circulation, especially in silver. This is corroborated by the statistical returns of the minting operations. Taking Mexico out of view, there is probably no country in the world which compares with France in the amount of coinage. From 1726 to 1840, a period of 115 years, the

* This term was introduced by Henry III. in 1575, who ordered a coinage of *francs*, of the value of 20 sols each. The coin was afterwards disused, but the word was long employed in common parlance as a synonyme for *livre*. (Salzade, *Recueil des Monnaies*, 1767.)

† The marks of some of the former mints are as follows: Rochelle, H; Bayonne, L; Toulouse, M; Perpignan, Q; Nantes, T; Marseilles, an M interlaced with A.

sum may be stated roundly at 8,235 millions of francs, equal to 1558 millions of dollars. During the reign of the present sovereign, to the close of 1840, the annual average has been 134 millions of francs (25 millions of dollars), of which seven-eighths are in silver.* French coins, especially of gold, are recoined here in considerable quantities.

There are some silver mines in France. In 1835, the amount raised was 1756 kilogrammes; in 1836, 1895 kilogrammes.† Perhaps the annual produce might be assumed at 400,000 francs, or 75,000 dollars.

The order of the French government, during the range of the present treatise, has been as follows. Louis XV., 1715–1774. Louis XVI., 1774–1793. Republic, 1793–1804. Napoleon, (Emperor,) 1804–1814. Louis XVIII., 1814–1824. Charles X., 1824–1830. Louis Philippe, since 1830, reigning sovereign. (See Plate VII.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|------------------------|---------|-----------------|-----------------|-------------------|--------------------|
| Louisd'or . . | 1726–73 | Louis XV. | 124 | 897 | 4 79 |
| Double do. . . | 1744 | do. | 250 | 902 | 9 71 1 |
| do. . . . | 1786–92 | Louis XVI. | 235 | 901 | 9 11 9 |
| Louisd'or . . | 1786–92 | do. | 116·5 | 900 | 4 51 6 |
| Napoleon, of 20 francs | 1803–14 | Napoleón. | 99·2 | 899 | 3 84 1 |
| Double do. . . | 1803–14 | do. | 198·5 | 899 | 7 68 5 |
| Forty francs . . | 1814–24 | Louis XVIII. | 198·5 | 899 | 7 68 5 |
| Twenty francs . | 1814–24 | do. | 99·2 | 899 | 3 84 1 |
| Forty francs . . | 1824–30 | Charles X. | 198·6 | 899 | 7 68 9 |
| Twenty francs . | 1824–30 | do. | 99·3 | 899 | 3 84 5 |
| Forty francs . . | 1830–39 | Louis Philippe. | 199 | 899 | 7 70 5 |
| Twenty francs . | 1830–39 | do. | 99·5 | 899 | 3 85 2 |
| do. . . . | 1840–41 | do.‡ | 99·5 | 900 | 3 85 7 |

* See Appendix for fuller statistics—procured through the favour of his Excellency LEWIS CASS, U. S. Minister Plenipotentiary at Paris.

† Karsten's *Archiv.*, Berlin, 1840.

‡ The assay of French gold coins is very regular, varying seldom more than 898½ to 899½; though the most recent coinage is fully 900. As for weight, it is found that one thousand twenty franc pieces, taken from the circulation, will vary from 4135½ to 4141½ dwts. Hence the true average value of the twenty franc piece is \$3 84 5. It will assist an American memory to note that it is a dollar less than the British sovereign.

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|------------------|----------|--------------------------|-----------------|-------------------|--------------------|
| Crown . . . | 1726-73 | Louis XV. | 440 | 912 | 1 08 1 |
| Half crown . . | 1726-73 | do. | 212 | 912 | 52 1 |
| Crown . . . | 1774-92 | Louis XVI.* | 444 | 912 | 1 09 1 |
| Half crown . . | 1774-92 | do. | 220 | 912 | 54 |
| Thirty sols . . | 1791-92 | do. | 153 | 667 | 27 5 |
| Fifteen sols . . | 1792 | do. | 77 | 662 | 13 7 |
| Six livres . . | 1793 | Louis XVI.—and Republic. | 445 | 912 | 1 09 3 |
| Five francs . | Year IV. | Republic. | 383 | 902 | 93 1 |
| do. . . | 1803-04 | Bonaparte, First Consul. | 383 | 902 | 93 1 |
| do. . . | 1804-14 | Napoleon, Emperor. | 383.5 | 902 | 93 2 |
| do. . . | 1815-24 | Louis XVIII. | 384 | 902 | 93 3 |
| do. . . | 1825-30 | Charles X. | 384.5 | 902 | 93 4 |
| do. . . | 1831-38 | Louis Philippe.† | 385 | 899 | 93 2 |
| Two francs . . | Various. | Various. | 154.5 | 900 | 37 5 |
| One franc . . | do. | do. | 76.5 | 900 | 18 5 |
| Half franc . . | do. | do. | 38 | 900 | 9 2 |
| Quarter franc . | do. | do. | 19 | 900 | 4 6 |

* French crowns are now seldom seen. They are occasionally brought from Canada to this mint, for recoinage, being so much worn as to be no longer passable. In a parcel of half crowns, lately deposited, there were some weighing only 202 grains, and worth just 50 cents; others, less worn, averaged 52 cents. The fineness varies from 909 to 915 thousandths. These coins contain two or three thousandths of gold, which is parted profitably at French refineries. Large quantities of crowns have been thus disposed of—reappearing in the form of fine bars.

† The humid assay, the admirable invention of M. Gay-Lussac, began to be employed in 1831. By the old process, from 3 to 5 thousandths of silver were lost, so that silver coins were finer, by that much, than it was intended to make them; unless the assayer allowed for the loss. Consequently, French five franc pieces prior to 1831 are a little better than those coined since. The humid assay was introduced here in 1835. It is doubtless destined to become of universal use.

GERMANY.

Deutschland.

GERMANY is composed of numerous distinct sovereignties, of various grades, each possessing the right of coining its own money. The coinage of this country would therefore appear as intricate a study as its political geography,* were it not that there have been several attempts to simplify and equalize the money, and with a good degree of success. To exhibit the general standards of coinage, as well as to notice those of a more limited and special authority, will be the object of the present article. The coinage of each sovereignty of any importance, will also be treated of under its own head.

Generally it may be observed, the northern states† reckon by the *thaler*, divided into *groschen*; the southern, by the *florin* or *gulden*, divided into *kreutzers*. Yet in the actual coinage there are both thalers and florins, of various values, all over Germany. Another general remark is, that since the diet of 1559, the conventions for equalizing the coin have confined their attention to the silver, as the more important currency; taking no notice of the gold. Nevertheless they have copied after each other very much in this respect, maintaining the above distinction of north and south. It is from the upper states only, that the *ten-thalers* issue; the lower countries coin *ducats* chiefly.

We shall first give some details of the gold coinage, and explain afterwards the provisions of the three conventions for adjusting the silver moneys.

GOLD COINS. At the diet of Augsburg, in 1559, two standards were recognised for gold coins of the empire. The first was $13\frac{1}{2}$ carats fine, at which 72 *florins*, 36 *maximilians*, or 24 *carolins*, were coined from a mark weight. This coinage was discontinued about a century ago, and will not be noticed further. The other standard was $23\frac{2}{3}$ carats, or 986 thousandths fine; and from a mark of such gold, 67 *ducats* were to be coined—equal to 53·87 troy grains per ducat.‡ This coinage is continued in Austria and other southern states. Having also been adopted by many

* Dr. Becher sums up the states actually coining money at the date of 1771, as follows: besides the Emperor, there were seven electors, thirteen spiritual princes, twenty-five temporal princes, sixteen barons, and six free cities; in all sixty-eight. (*Oesterreich. Münzw.*, Vienna, 1838, vol. i.)

† The fiftieth degree of latitude affords a pretty correct line of demarcation.

‡ According to Kelly, the Cologne mark is equal to 3608 troy grains at Hamburg, and 3609 in Germany generally. Bonneville rates the mark at 233·864 grammes. The mint convention of 1838 declared its equivalent to be 233·855 grammes. This would correspond to 3609·5 troy grains.

other nations, the ducat may be considered as one of the universal coins. Its nominal value, in the north of Germany, is $2\frac{3}{4}$ rixdollars of account; in the south, it is equal to 2 crowns, or $5\frac{1}{2}$ florins; in Austria, $4\frac{1}{2}$ florins. All gold coins however are at a premium against silver.

A third standard originated about the year 1740, in Brunswick, and is now in general use in the northern states. The fineness was at first $21\frac{3}{4}$ carats (903 thousandths), but afterwards was reduced to $21\frac{1}{2}$ carats (896 thousandths); at which rate there are coined from a mark weight, $17\frac{1}{2}$ pieces of ten-thalers, 35 pistoles, or five-thaler pieces, and 70 half-pistoles. This is equal to 206.26 troy grains to the ten-thaler piece; but the best specimens do not actually weigh more than 205 grains.

Since 1819, gold pieces of ten and five gulden, nine-tenths fine, have been coined in Baden.

SILVER COINS. These have been the subject of regulation at three conventions, held within the past century and a half. The first was at Leipsic, in 1690, and the standards then adopted are usually distinguished as the *Leipziger-fuss*, or basis of Leipsic. This convention was influential only in the northern states. The second was held in 1753, and although only Austria and Bavaria were represented, the standards were gradually adopted by almost the whole confederation. They are commonly known as the *convention* basis. The third was a partial convention, held in 1837, the articles of which were adopted, with others superadded, at a general convention in 1838, held at Dresden. At this last meeting there were envoys present from all the states except Austria, Hanover, Brunswick, and a few of less note.

The following schedule exhibits the various denominations of money, and their legal standards, as adopted at the respective conventions; together with the *kronenthaler* or crown dollar, and florin of the southern states, coined since the beginning of the present century. It may be here stated, that the standards of the recent convention were to take effect from January, 1839, and to be established as the sole standards within two years thereafter. The agreement is binding until 1858; after which it may be prolonged by terms of five years, unless a notice to the contrary has been given, two years previously, by any of the parties. The coinage under this convention has already become extensive, and the system bears the marks of permanency.

| DENOMINATION. | | WEIGHT. | | FINENESS, THOUS. | VALUE, AT FULL WEIGHT AND FINENESS, D. C. M. |
|---------------------------------|---|-----------------------------------|------------------------------------|---------------------|---|
| | | PIECES TO A COL. MARK FINE. | TROY WT. OF EACH PIECE. GRS. | | |
| Leipsic | Specie thaler | 9 | 451.1 | 889 | 1 08 |
| rate, | Sp. florin, <i>zweydrittelstück</i> * | 18 | Various. | Various. | 54 |
| 1690. | Thaler of account (not a coin) | 12 | . . . | . . . | 81 |
| Convention rate, 1753. | Specie thaler | 10 | 433.2 | 833 | 97 2 |
| | Specie florin | 20 | 216.6 | 833 | 48 6 |
| | Thaler of account . . . | 13 $\frac{1}{3}$ | . . . | . . . | 72 9 |
| | Half florin | 40 | 108.3 | 833 | 24 3 |
| | Twenty kreutzers . . . | 60 | 103.2 | 583 | 16 2 |
| | Crown of southern states . | 9 $\frac{8}{100}$ | 456 | 872 | 1 07 4 |
| | Florin do. . . . | 24 | 200.6 | 750 | 40 5 |
| Convention rate, 1837-38. | Two thaler, or 3 $\frac{1}{2}$ florin piece | 7 | 572.9 | 900 | 1 38 9 |
| | Thaler | 14 | 343.8 | 750 | 69 4 |
| | Two-third thaler . . . | 21 | 229.2 | 750 | 46 3 |
| | One-third thaler . . . | 42 | 114.6 | 750 | 23 1 |
| | One-sixth thaler . . . | 96 | 72.2 | 521 | 10 1 |
| | Florin | 24 $\frac{1}{2}$ | 163.7 | 900 | 39 7 |
| | Half florin | 49 | 81.8 | 900 | 19 8 |
| | One-tenth florin (6 kr.) . | 270 | 40 | 333 | 3 6 |
| | One-twentieth florin (3 kr.) . | 540 | 20 | 333 | 1 8 |

* Called zweydrittel, or two-third piece, because it was two-thirds of the dollar of account, though only half of the specie dollar. This piece was sometimes coined of fine silver, sometimes only three-fourths fine; the weight being varied accordingly.

In respect to this whole table, it will be understood that these are the *legal*, not the *actual* weight, fineness, and value; which last are to be sought under the respective countries.

GREECE.

Hellas.

AFTER a revolutionary struggle of nine years, this country was emancipated from Turkish rule, and became (1829) an independent nation. Its form of government was not settled until 1833, when Otho of Bavaria was called to the throne, which he still occupies. A system of coinage was decreed in the same year, and coins were, in accordance therewith, immediately issued.

The gold coins are the pieces of 40 and 20 *drachmai*, or drachms; but as yet, only the latter has been struck. The legal fineness is nine-tenths; the weight of the 20 dr. piece is 5·776 grammes, or 89 troy grains.

The silver coins are the pieces of five, one, one-half, and one-fourth drachmè. The fineness is nine-tenths; the weight, 4·477 grammes, or 69 troy grains to the single drachmè—the others proportional. The drachmè* is the unit of accounts, and is divided into 100 *lepta*. It is evidently founded upon the ancient coin of the same name, being of about the same value. Probably some reference was had also to the Spanish dollar, which by the tariff is made current at six drachmai.

Various foreign coins are legalized at certain rates, such as the five franc piece of France, at 5·58 dr., the Austrian rixdollar at 5·78, the Holland ducat at 13, &c.†

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------|---------|--------|-----------------|---------------------|--------------------|
| 20 drachm . . . | 1833 | Otho. | 89 | 900 | 3 45 |
| 5 do. | 1833 | do. | 345 | 900 | 83 6 |
| Drachmè . . . | 1832–33 | do. | 68·5 | 902 | 16 6 |
| Half do. . . . | 1833 | do. | 33·5 | 902 | 8 |
| Quarter do. . . | 1834 | do. | 17 | 902 | 4 1 |

* Dr. Arbuthnot deduces δραχμή from δραγμα, *a handful*; “or as you would say, a handful of six oboli.” (*Ancient Coins*.)

† Specimens of the coinage, with details concerning them, were obligingly furnished by our Consul at Vienna, MR. SCHWARZ.

G U I A N A.

THIS region of country, lying on the northern coast of South America, is at present divided into three colonies, belonging to Great Britain, Netherlands, and France, respectively.

BRITISH GUIANA, or Demerary. The basis of moneys in this colony was, until recently, the *guilder*, divided into 20 stivers. But by an ordinance of February, 1839, it was "deemed advisable to establish dollars and cents, as the denomination of moneys of account of British Guiana, in the place of guilders and stivers." Three guilders were declared equal to the dollar.

Silver coins have been struck at various times by the British government, for this colony. The denominations are of three, two, one, one-half, one-quarter, and one-eighth guilder.

SILVER COINS.*

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------------|-------|-------------|-----------------|---------------------|--------------------|
| Doll. of 3 guilders . | 1809 | George III. | 359 | 824 | 79 7 |
| 2 guilders . . | 1809 | do. | 238 | 825 | 52 9 |
| 3 do. . . . | 1816 | do. | 359 | 825 | 79 8 |
| 1 do. . . . | 1816 | do. | 119 | 825 | 26 4 |
| do. . . . | 1832 | William IV. | 119·5 | 819 | 26 4 |
| Half-guilder . . | 1836 | do. | 59·5 | 819 | 13 1 |
| Quarter-guilder . | 1836 | do. | 30 | 819 | 6 6 |

In DUTCH GUIANA, (Surinam,) there was formerly a currency of small silver coins, but these have been displaced by notes of the West India Bank, for ten, fifteen, and twenty-five cents. These are received for colonial dues, but are much below the par value. Thus, in September, 1839, good bills on Holland at ninety days, were from ten to fifteen per cent. advance, and specie from twelve to seventeen per cent.†

* For specimen coins, with statements, we are indebted to MOSES BENJAMIN, Esq., U. S. Consul for British Guiana.

† This information is due to the U. S. Consul at Surinam, THOMAS TRASK, Esq.

We can give no satisfactory information as to the currency of FRENCH GUIANA. Some small colonial coins are used there, but apparently none of recent emission. Between this and the adjoining colony, the commercial restrictions are so great that it is scarcely known, in the one, what is the currency of the other.

HANOVER.

THE dominions of Brunswick were divided, in 1559, into the two branches of Wolfenbittel and Hanover. They have ever since been separate governments, with different systems of coinage; but the title of *Duke of Brunswick and Luneburg* has been, until recently, maintained by the reigning princes of both sides; which makes some confusion in the study of their coins. It was not until the reign of George IV. that the name of Hanover appeared on the coins at all. It was then joined to the old title; but on the accession of William IV., the simple legend *King of Hanover* was adopted, and has so remained. Any difficulty, however, will be removed by considering, that the Elector or King of Hanover has also filled the throne of Great Britain, from George I. to William IV.—1714 to 1838. The names of the Brunswick princes are different from those of the English monarchs. (*See Brunswick.*)

GOLD COINS. Hanover was one of the last states which disused the old *gold gulden*, of 72 to the mark. (*See Germany.*) None, however, appear to have been coined since 1755.

The *ducat*, coined at the usual standards of the German empire, seems to have been disused since 1776.

The present gold coins are the 10, 5, and $2\frac{1}{2}$ thaler pieces; formerly coined at 35, but now at $35\frac{1}{2}$ pieces of 5 thalers to the mark, $21\frac{1}{2}$ carats fine. There is no permanent value of these coins, as compared with the silver; but the minister of finance has power to fix, from time to time, the value at which the government will receive the same in lieu of silver.

It will be seen by the ensuing tables, that the coinage of George III. and George IV. falls below the usual fineness, by one-half per cent. This deficiency was ascertained here by repeated assays; it was known also at Hamburg, from whence the bullion was chiefly derived, and had the effect to divert the supply to the mints of Brunswick and Denmark. It is through the constant intermixing of these inferior pieces of Hanover, that the reports upon German gold are kept low, as well as unsteady, at this mint. Since the accession of William IV., or at least since 1835, the evil has been remedied.

SILVER COINS. This country did not adopt the basis of the German convention of 1753. As late as 1766, specie-thalers of the Leipsic rate were coined. Since that date, there have been coined florins, or *two-thirds* pieces,* of 24 *marien-groschen*, equal in value to half the Leipsic dollar, and usually of fine silver, nearly; though at one time the fineness was reduced to three-fourths (750 thousandths), and the weight increased proportionally. Pieces of four *marien-groschen* were also coined from fine silver. Since 1834, Hanover has adopted the Prussian standard, of 14 *thalers* to the fine mark; the thaler being divided into 24 good-groschen. They are, however, of fine silver, and not three-fourths, as in Prussia.† The Leipsic florin is still continued; and there are, besides, pieces of 4 groschen, or one-sixth thaler, 2 groschen, 1 groschen, 6 and 4 pfennig.

The mines of the Hartz mountains are stated to produce, on an average of ten years past, about 10 marks of gold, and 50,000 marks of silver annually. The Rumelsberg mine, which is the joint property of Hanover and Brunswick, yields annually 10 marks of gold, and 4000 marks of silver.‡

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|------------------------|---------|------------------|-----------------|---------------------|--------------------|
| Ducat . . . | 1776 | George III. | 53·5 | 993 | 2 28 8 |
| Pistole, or 5 thaler . | 1803 | do. | 102 | 896 | 3 93 6 |
| 10 thaler . . . | 1813-14 | do. | 204·5 | 890 | 7 83 8 |
| 5 thaler . . . | 1813-14 | do. | 102 | 890 | 3 91 |
| 10 thaler . . . | 1822-30 | George IV. | 204·7 | 890 | 7 84 6 |
| do. . . . | 1835-36 | William IV. | 204·7 | 895 | 7 89 |
| do. . . . | 1839 | Ernest Augustus. | 205 | 895 | 7 90 2 |

* That is, two-thirds of the *thaler of account*, as settled by the Leipsic convention of 1690. (See *Germany*.)

† Silver without alloy is commonly thought unfit for the purposes of coinage; but as it is brought in that state direct from the Hartz mines, it seems to be considered expedient to work it up in its original purity.

‡ We are indebted to JOHN CUTBERT, Esq., U. S. Consul at Hamburg, for materials in framing the present article.

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|---------------------|---------|------------------|-----------------|-------------------|--------------------|
| Specie-thaler . . . | 1766 | George III. | 449 | 896 | 1 08 3 |
| Florin | 1783-97 | do. | 201 | 995 | 53 8 |
| do. | 1801 | do. | 266 | 753 | 54 |
| do. | 1807-14 | do. | 201 | 995 | 53 9 |
| 4 mar. gros. . . . | 1776 | do. | 34 | 995 | 9 |
| Florin | 1825 | George IV. | 202 | 996 | 54 2 |
| Thaler | 1834 | William IV. | 259 | 997 | 69 6 |
| do. | 1838 | Ernest Augustus. | 259 | 996 | 69 5 |
| Florin | 1839 | do. | 204 | 996 | 54 7 |

HANSE TOWNS.

Of this ancient league of free cities, three are still using their right to coin money. These are Bremen, Frankfort, and Hamburg.

BREMEN reckons by dollars of 72 *grote*; the *groten* being subdivided into 5 *schwaben*. In 1753, the principal coin was a silver piece of 48 *grote*, weighing 269 troy grains at 750 thousandths fine, and therefore worth 54.3 cents. Since that date, until 1840, it does not appear that there has been any coinage. In 1840 new pieces were issued, of 36 gr. at 15 loths 14 grains, or 986 thousandths fine; 12 and 6 gr. at 11 loths 15 grains, or 740 thousandths fine; and 1 *groten*, at 4½ loths, or 231 thousandths fine. The piece of 36 *grote* weighs 134½ grains troy, and being of full standard fineness, is worth 35.7 cents. Hence the new *groten* is of less value than the old one, and is almost interchangeable with our cent.* (See Plate XIII.)

FRANKFORT reckons, with the southern German states, in florins or *gulden* of 60 kreutzers.

As late as 1796, ducats were coined, of the usual weight and fineness; but no gold coinage seems to have been executed since that date.

* Letter of MARCUS DERKHIEM, Esq., late U. S. Consul at Bremen.

Of silver coins, the convention-dollar was the principal, of which, from 1763 to 1796, there are six different impressions. These, as usual, express on their face the rate of coinage, "Ten to the fine mark." Their value in our money is 97 cents.

Frankfort was a party to the southern convention of 1837, at which the rate of $24\frac{1}{2}$ florins to the fine mark was agreed upon. (See *Germany*.) Consequently, since 1838 there has been a new coinage of pieces of one gulden, one-half, six kreutzers, three, and one kreutzer. The gulden weighs 164 grains, and is 900 thousandths fine; value, 39·7 cents. The six kr. piece, 39 grains, and 333 fine; value 3·4 cents.* (Plate XIII.)

HAMBURG. Accounts are kept in marks *banco*, but the coinage is in marks *current*. Both are divided into 16 *schillings*.

The gold coinage consists of ducats, at the German rates, and valued at six marks *banco*. A ducat of 1825 weighed 53·5 grains, and yielded 980 thousandths fine; value, \$2 25 7. The gold coins are rare, and intended rather for show (*schaumünze*) than for circulation.

In the silver coinage, the specie dollar of the Leipsic basis (see *Germany*) was formerly the principal piece, but it has been discontinued since 1764. It was reckoned at 3 marks *banco*, or $3\frac{3}{4}$ marks *current*. Since that date, and until 1808, there have been pieces of two marks *current*, one mark, eight and four schillings. Since 1833 there are new pieces of one schilling, half-schilling or *sechsling*, and quarter, or *dreiling*.

The following are the legal weights and fineness, of silver coins:†

| DENOMINATION. | PIECES TO A MARK. | FINENESS. THOUS. | TROY GRS. TO EACH PIECE. |
|-----------------------------|-------------------|---------------------|-----------------------------|
| Double mark, 32 schilling . | $12\frac{3}{4}$ | 750 | 283 |
| Single mark, 16 schilling . | $25\frac{1}{2}$ | 750 | 141·5 |
| 8 schilling | $42\frac{1}{2}$ | 625 | 85 |
| 4 schilling | $76\frac{1}{2}$ | 562 | 47 |
| 2 schilling | 119 | 437 | 30·3 |
| Schilling | 216 | 375 | 16·6 |
| Sechsling | 304 | 250 | 11·8 |

The weights and fineness, as far as tried here, conform very nearly to those rates.

* Letter of ERNEST SCHWENDLER, Esq., U. S. Consul at Frankfort.

† For specimen coins, with statements, we are indebted to the correspondence of JOHN CUTHBERT, Esq., U. S. Consul at Hamburg.

Hence the mark current is worth $28\frac{1}{2}$ cents. This would make the par of the mark banco, in our money, 35·6 cents. The ducat valuation gives a result of 37·6 cents. But as at present bar silver is sold at $27\frac{3}{4}$ marks banco, for a Cologne mark fine, the true par may be estimated at 35 cents, precisely.

H E S S E.

THIS ancient principality was divided in the sixteenth century, and subsequently a third branch was set off. These divisions are usually specified by annexing the name of the capital town; as, Hesse-Cassel, Hesse-Darmstadt, and Hesse-Homburg. The coins however are only to be distinguished by the titles of the sovereigns; the first being Elector (*Kurfurst*), the second Grand Duke (*Grosherzog*), and the third Landgrave (*Landgraf*), of Hesse. This distinction does not date farther back than 1803, the year in which Hesse-Cassel was erected into an electorate; but the coinage of the other two states, before that date, will not require any notice in the present work.

HESSE-CASSEL. The gold coins of the electorate are pieces of 10 and 5 thalers, coined at the usual rate of those denominations. (*See Germany.*)

In the silver coinage, the convention-thaler and its divisions were adopted; but in 1773, a new thaler appeared, three-fourths fine, and equal to the thaler of account in value; in 1789, this was displaced by another thaler, of finer metal, but reduced in weight, so as to make it equivalent to the Prussian thaler, and somewhat less valuable than the former; finally, in 1819, the Prussian standards were adopted, and there has since been no alteration.

This state was a party to the general mint-convention of 1838.

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-------------------|---------|---------------|-----------------|---------------------|--------------------|
| Ten thaler . . . | 1773-85 | Frederick II. | 202 | 890 | 7 74 2 |
| Five thaler . . . | 1771-84 | do. | 101 | 893 | 3 88 4 |
| do. . . . | 1788-99 | William IX. | 101·5 | 892 | 3 89 9 |
| do. . . . | 1815-17 | William I. | 101·5 | 894 | 3 90 8 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|---------------------|---------|-----------------------------|-----------------|-------------------|--------------------|
| Specie-thaler . . . | 1766 | Frederic II. | 430 | 836 | 96 8 |
| Half do. . . . | 1760-61 | do. | 215 | 836 | 48 4 |
| Thaler | 1778 | do. | 360 | 750 | 72 7 |
| do. | 1789 | William IX. | 291 | 885 | 69 4 |
| do. | 1819 | William I. | 340 | 750 | 68 7 |
| Half thaler . . . | 1819 | do. | 170 | 750 | 34 3 |
| One-third thaler . | 1824-27 | William II. | 130.5 | 660 | 23 2 |
| One-sixth thaler . | 1823-30 | do. | 81 | 505 | 11 |
| Thaler | 1832-37 | William II. and Fred. Will. | 341.5 | 748 | 68 8 |
| One-sixth thaler . | 1833-36 | do. | 82 | 525 | 11 6 |

HESSE-DARMSTADT, being one of the southern states, reckons by florins. There appears to have been no gold coin since 1753, nor silver, earlier than 1809. At that date convention-thalers were coined, and afterwards crowns (*kronen-thaler*), at the usual rates. Since the conventions of 1837-8, pieces of 2 thalers or $3\frac{1}{2}$ gulden, and of one and one-half gulden have been issued.

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|---------------------|---------|-----------|-----------------|-------------------|--------------------|
| Specie-thaler . . . | 1809 | Louis I. | 432 | 833 | 96 9 |
| Crown | 1825 | do. | 455 | 875 | 1 07 2 |
| do. | 1836 | Louis II. | 456 | 875 | 1 07 5 |
| Gulden | 1838-39 | do. | 164 | 900 | 39 8 |
| Half gulden . . . | 1838 | do. | 82 | 900 | 19 9 |
| Two-thalers . . . | 1839 | do. | 574 | 900 | 1 39 1 |

HESSE-HOMBURG is the smallest branch of the Hessian dominions. Only a single specimen of its coinage has appeared here, a gulden of 1833, coined at the new standards, and equal to the same piece of Darmstadt.

HINDUSTAN.

THE monetary unit of the old Mogul Empire was the *sicca rupee*, a silver coin of a high fineness, and nearly equal in value to our half-dollar. Its origin is not known, but it has been traced back with trivial variation, to the thirteenth century.* The prefix of *sicca* signifies a certain weight, used for precious metals, equal to $7\frac{1}{2}$ dwts., or more strictly 179 $\frac{2}{3}$ troy grains. The gold rupee, or *mohur*, was of the same weight. Since the decline and fall of the empire, the commencement of which may be dated at the invasion of Nadir Shah from Persia, in 1739, various other kinds of rupees have appeared. The native viceroys, learning from that event how weak was the power to which they professed allegiance, soon threw off the yoke, and the whole territory was broken up into numerous petty sovereignties. The native princes coined their own money, and in general maintained an adherence to the *sicca* weight; but there was no rule for fineness, and the debasement in many cases was considerable. Hence arose the extensive and diversified catalogue of local coins.† But without farther notice of these, it becomes necessary to explain how there originated three kinds of currency in the British possessions; which will best be attained by treating separately of the three presidencies of Bengal, Madras, and Bombay. The uniform system adopted in 1835 will also be noticed.

BENGAL, or *Calcutta*. It does not appear that there was any coinage by the Company in this region, earlier than 1762. Two years before that date, Shah Alum, the last of the Moguls, was placed in the imperial throne at Delhi, which had then become almost an empty honour. He was soon obliged to succumb to the Company's protection, and receive a pension to support his nominal rank. But during his life, and what may seem strange, long after his death,‡ the coins of the Company, struck at Morshedabad and Calcutta, punctiliously affirmed that "He who is the shadow of divine favour, the defender of the religion of Mahomed, the Emperor *Shah Alum*, coins money for the seven climates."§ This is the only presidency in which the *sicca* rupee continued to be coined; and it is only since 1835, that the

* See the whole train of coinage, well displayed, in Marsden's *Numismata Orientalia*.

† By tables of assays made at the Bombay mint in 1826, it appears there were then current twenty-five varieties of gold pagodas, and seventy of silver rupees, besides foreign coins. Kelly, *Oriental Metrol.* 1832.

‡ This occurred in 1806.

§ "The seven climates" is meant for *the whole world*. This inscription is in the usual lofty style of Eastern potentates.

Bengal rupee has been lowered, to make it uniform with those of Madras and Bombay. Properly speaking, there is now no sicca rupee coined.

In 1793, the mint proportions were fixed for Bengal at the following rates:

The gold mohur to be 992·5 thousandths fine, and to weigh 190·9 troy grains.

The sicca rupee to be 979·2 thousandths fine, and to weigh 179·7 grains.

The parts of these coins were to be in proportion.

These are called the coins of the nineteenth sun, as if struck in the nineteenth year of Shah Alum's reign; and the figures 19 are conspicuous on their face. However, it is well known that the East India mints paid no attention to dates, inasmuch as the issues of many years still bore the same figures; indeed, the object was to establish the idea of uniformity, which was thought to be better conveyed by an unchangeable device.

In 1818 there was a change of standards, though not of value; the object simply being to render the coinage more fit for its purposes, by hardening it with an increased alloy. The rates then established were as follows:

The gold mohur to be eleven-twelfths (916·7 thousandths) fine, and to weigh 204·7 grains.

The sicca rupee to be of the same fineness, and to weigh 191·9 grains.

At the mints of Furruckabad and Benares, in the same presidency, rupees were struck at sundry times previous to 1820, for local currency; they were nearly of the same value as the rupee of the present coinage.*

The last change in the Bengal standards, and one by which the moneys of all British India are rendered uniform, was by the act of August 1835.† This law provides that the weight and fineness of the gold mohur and silver rupee shall be the same, viz. 180 grains in weight, $\frac{11}{12}$ ths fine. The gold piece is equivalent to fifteen of the silver. The smaller coins are, in gold, a ten rupee piece, or $\frac{2}{3}$ mohur, and a five rupee piece. A few double mohurs have also been struck. The silver coins, besides the rupee, are the double, half, and quarter rupee. All the pieces are of the same fineness, and proportional in weight. By this standard, which is likely to be permanent, the Bengal rupee was reduced from 47·3 cents, to 44·3 cents, of our money.

In stating accounts, the rupee, at Calcutta and Madras, is divided into 16 *annas*, and the anna into 12 *pie*.‡ For more minute subdivisions, the natives use sea-

* Kelly's Cambist.

† The facts in relation to the new coinage, with some other particulars, have been obligingly communicated by Dr. Thomas Horsfield, librarian at the East India House, London; who procured them from H. H. Wilson, Esq., late assay master of the mint at Calcutta. Specimens of the same for assay, were furnished by W. G. Stearns, Esq. of Boston, whose attentions we have before had occasion to notice.

‡ The singular is *pie*, an Anglicism of *peisah*. It is a very small copper coin.

shells, called *couries*; of which 160 are reckoned equal to one anna. But at Bombay, unless there has been a recent change, the rupee is divided into quarters, and each quarter into 100 *reas*.*

Until the reign of William IV., the old Persian inscriptions and dates were kept on the coins; but the new currency exhibits the heads of William and of Victoria, with legends in English, and the date of the Christian era.

MADRAS. In 1620, the British Company obtained a settlement at Fort St. George, on the Coromandel coast, with certain commercial privileges, and amongst them, the authority to coin money. This settlement has now grown to the presidency of Madras; and besides other tracts of country, includes the former dominions of Tippo, Sultan of Mysore.

The coins of Madras bear the designation of *Arcot*, a neighbouring city where there was an imperial mint; and no doubt the early standards were based upon those of that city. In the old system, the coinage consisted of the *star pagoda* in gold, with *rupees* and *fanams* in silver. The pagoda was of ducat weight ($52\frac{3}{4}$ grains), and eight-tenths fine. The rupee was of sicca weight ($179\frac{2}{3}$ grains), though it afterwards declined to 176·4 grains, at a fineness of 940 thousandths. The *fanam* was a very small thick silver coin, of which 12 were reckoned to the rupee, and 42 to the pagoda.

In 1811 a coinage from Spanish dollars took place, consisting of double and single rupees, halves and quarters, and pieces of 1, 2, 3, and 5 fanams. This rupee contained the same amount of fine metal, but with an addition of 10 grains of alloy to the weight. Pieces of half and quarter *pagodas*, in silver, were also then coined. The half piece weighed 326·7 grains troy, and was equal in value to half the star pagoda.†

In 1813 new mint regulations were adopted, by which the star pagoda was displaced, and the gold mohur substituted; and both the mohur and rupee were fixed at 180 grains in weight, and $\frac{1}{12}$ ths fine. This is the proportion of the new coinage of 1835, above mentioned.

Various other kinds of coins have been current in this presidency, especially the pagodas of Pondicherry and Porto Novo, which will be further noticed in the tables.

* It will be useful to add, that in India, when large sums are expressed by figures, the form is different from ours. There, 100,000 rupees are called one *lac*, and 100 lacs make one *crore*. Therefore, while we would write Rs. 112,644,300, they divide it thus: Rs. 11,26,44,300; that is, eleven crores, twenty-six lacs, forty-four thousand, and three hundred.

† Kelly's Cambist. Marsden takes no notice of the rupees of 1811, but merely notices the pagoda and its divisions, which, he says, were struck for Ceylon. They bear English characters, and have the representation of a pagoda or temple.

BOMBAY. The British Company obtained this settlement by cession from the Portuguese, in 1661; and in 1716 began to coin money. An agreement was made with the neighbouring Nabob of Surat, (at what date we know not,) that the rupees of that city and of Bombay, should be the same in value. Hence the Company's coinage, in this presidency, has borne the imprint of Surat, with the usual inscriptions in the Persian character, until within a few years. It is stated that the nabob, in violation of his engagement, soon began to debase his coin; the effect of which was to draw away the Bombay coins to Surat, where they were recoinced at a reduced rate. The Company's mint was thus compelled to suspend operations for about twenty years; but in 1800, new mint regulations were established, conformable to those of Surat, by which the gold mohur and silver rupee were to be of the weight of 179 grains, and 920 thousandths fine. No alteration was made in this standard until 1824, when to conform to the Madras rates, the weight was increased to 180 grains, and the fineness reduced to $916\frac{2}{3}$ thousandths. This was an addition to the rupee of about one-third of a cent in our money.

It appears then, that the standard, now uniform, for all British India, originated at Madras in 1818, and was adopted at Bombay in 1824, and by Calcutta in 1835. Since the disuse of native characters on the coins, there is no designation by which to distinguish between the issues of these three mints.*

It is understood that the mints of some of the native princes are still in operation. The most important are those of Lucknow, Hyderabad, and Nagpore; but even of these, the coinage is of limited circulation. The amount of coinage of British India and the states in connexion with it, for many years prior to 1834, is stated to have been three *crores* (thirty millions) of rupees annually. There are no returns at hand of a later date.

Gold dust is obtained by washing the soil of some of the feeders of the Indus, in the Himalaya mountains; but the amount is trifling, and the business is very irregularly prosecuted, as it affords little profit. The chief supply of gold, in India, is from South America, and from Sumatra and other parts of the Malayan Archipelago. (See Plate XVI.)

* The operations of the Madras mint have been suspended for some eight years past, though they are now about to be resumed.

GOLD COINS.

| DENOMINATION. | DATE. | WHERE COINED. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|---------------------|-------------|-----------------------------|-----------------|---------------------|--------------------|
| Mohur . . . | 1184 (1770) | Bengal. | 190 | 982 | 8 03 5 |
| do. . . . | 1202 (1787) | do. | 191 | 989 | 8 13 4 |
| Half mohur . . | 1202 | do. | 95 | 984 | 4 02 6 |
| Mohur | (1793) | do. | 191 | 993 | 8 16 8 |
| do. | (1818) | do. | 204·7 | 917 | 8 08 4 |
| do. | (1818) | Madras. | 180 | 917 | 7 10 9 |
| do. | (1818) | Bombay. | 179 | 920 | 7 09 2 |
| do. | (1835) | British India ; William IV. | 180 | 917* | 7 10 9 |
| Star pagoda . . | None. | Madras. | 52·5 | 800 | 1 80 9 |
| Pondicherry pagoda | None. | Pondicherry. | 52·5 | 708 | 1 60 1 |
| Porto Novo pagoda . | None. | Portuguese Company. | 52·5 | 740 | 1 67 3 |

SILVER COINS.

| DENOMINATION. | DATE. | WHERE COINED. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-------------------|-------------|-----------------------------|-----------------|---------------------|--------------------|
| Sicca rupce . . . | None. | Mogul Empire ; Shah Alum. | 177 | 938 | 44 7 |
| do. | 1197 (1782) | do. struck at Arcot. | 177 | 958 | 45 7 |
| do. | None. | Bengal ; 19th sun. | 179 | 980 | 47 2 |
| do. | (1818) | do. | 192 | 920 | 47 6 |
| Rupce | (1818) | Bombay. | 179 | 920 | 44 4 |
| do. | (1824) | do. | 180 | 917 | 44 5 |
| do. | (1818) | Madras. | 180 | 917 | 44 5 |
| New rupce . . . | 1835 | British India ; William IV. | 180 | 917 | 44 5 |
| Half do. . . . | 1835 | do. | 90 | 917 | 22 3 |
| Quarter do. . . | 1835 | do. | 45 | 917 | 11 1 |

* Fineness assumed.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | WHERE COINED. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|------------------|-------|---------------------------|-----------------|-------------------|--------------------|
| New rupee . . | 1840 | British India ; Victoria. | 180 | 917 | 44 5 |
| Quarter pagoda . | 1811 | Madras. | 164 | 900 | 39 8 |
| Double fanam . | None. | Southern India. | 28 | 909 | 6 9 |
| Fanam . . . | None. | do. | 14 | 920 | 3 5 |
| Rixdollar . . | 1821 | Ceylon ; George IV.* | 140 | | |

J A P A N.

THE coins of this empire are rarely seen here. They are of peculiar shapes, some being oval plates, with a few characters stamped on them, others being in the form of a parallelogram, of which a specimen is shown in Plate XVI. The gold piece called *itzebo*, weighing from 51 to 69 grains, is reckoned to be worth two dollars. The *nandio-guin*, of silver, weighs 160 grains, about 92 per cent. fine, and therefore worth forty cents. Most payments are made in silver ingots, of seven ounces or less, and eleven-twelfths fine. There are also brass *cash*, similar to the Chinese, from which they cannot easily be distinguished.

A Spanish dollar is valued at 70 to 74 *candareens*, of which 100 go to a silver *tale*.

MALAY ARCHIPELAGO.

OF this extensive group of islands, Java and Sumatra are to a considerable extent under the dominion of the Netherlands, and the Philippines under that of Spain. On some of the other islands there are Dutch settlements.

The currency consists chiefly of Spanish or Mexican dollars, Dutch ducatoons, and rupees of Hindustan. There appears to be no native coinage of recent date. Since 1783, there have been gold and silver coins struck by the European companies, for Java. The first series was of the Holland Company, and was continued until their

* Not assayed.

possessions were captured, in 1811, by the English. A second series then appeared; bearing, like the former, inscriptions in Oriental characters. In 1816 the island was restored to the Dutch; and since that date there has been a third system of coinage, differing from the preceding in the denominations and standards, as also in the impressions, which are in the Dutch language, and Roman character.

There seems to be a coinage of dollars specially for the Philippine Islands. A specimen tried here, bearing the word MANILA, and date of 1825, weighed 402 grains; but from its specific gravity was judged to be not more than seven-eighths, or 333 thousandths fine, which is greatly below the Spanish standard. This piece was worth about 90 cents.

The Philippines were the entrepot of Spanish trade between Acapulco and Eastern Asia; it is stated that 400 millions of dollars in specie have reached there, during an intercourse of 250 years.*

The island of Sumatra is productive of gold, but to what extent is not known. The export from Singapore to England, in one year ending in 1838, of gold dust evidently derived from Ophir, was eight peculs, or 15,600 troy ounces; probably worth 270,000 dollars.† (See Plate XVI.)

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | BY WHOM COINED. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|------------------|-----------|---------------------------|-----------------|-------------------|--------------------|
| Gold rupee . . | 1783 | Dutch government of Java. | 240 | 758 | 7 83 5 |
| do. . . | 1796 | do.‡ | 239 | 706 | 7 26 7 |
| Half do. . . | 1801 | do. | 123 | 779 | 4 12 7 |
| Gold rupee . . | 1814 | English E. I. Company. | 118 | | |
| Silver rupee . . | 1783 | Dutch government of Java. | 200 | 833 | 45 |
| do. . . | 1796 | do. | 200 | 663 | 35 7 |
| do. . . | 1814 | English E. I. Company. | 208 | | |
| Guilder . . | 1820 | Dutch government. | 166 | 898 | 40 2 |
| Ducatoon . . | 1766-1804 | do.§ | 500 | 938 | 1 26 3 |
| Guilder . . | 1839 | do. | 155 | 944 | 39 4 |
| Half do. . . | 1826 | do. | 83 | 898 | 20 1 |
| Quarter do. . . | 1840 | do. | 62·5 | 569 | 9 6 |

* British Col. Mag., 1840.

† Jocelyn's Chinese Expedition, 1841.

‡ There was much variation in the weight and fineness of these issues.

§ Coined for the East India trade generally.

|| This is according to the new standards. (See *Netherlands*.) We are indebted for specimens, &c. to J. W. VANDEN-BROEK, Esq., U. S. Consul at Amsterdam.

MAURITIUS.

THIS island, an important entrepot of trade in the Indian Ocean, was under French dominion for nearly a century previous to 1810. In that year it was taken by the British, and has since remained in their possession.

In 1810 a silver coinage of ten-livre pieces was struck by the French authorities for this island and the neighbouring one of Bourbon. A specimen weighing 414 grains, proved 833 thousandths fine, and was therefore worth $92\frac{1}{2}$ cents; making the colonial livre $9\frac{1}{4}$ cents, or one-half of the national. The legend on the coin was *Iles de France et Bonaparte*. A coinage has since been executed at London for this island, said to consist of silver pieces of the same weight and fineness as the Spanish dollar and its divisions.

Accounts are kept in sterling money by the colonial government, and in dollars and cents by the merchants. Formerly the dollar of ten livres* above noticed was the unit, and was divided into 200 sols. From the tariff of moneys it would seem that the coins of Hindustan, England, France, Spain, Austria, and the United States are familiarly known there, and constitute the bulk of the circulation.

MECKLENBURG.

THIS country, situated in the north of Germany, is divided into the two branches of *Schwerin* and *Strelitz*. The former is the most considerable, and it is only of this division that we have seen specimens of coinage.

The gold coins of Mecklenburg-Schwerin consist of the ten and five thaler pieces, coined at the usual rate of those denominations. (See *Germany*.)

This grand duchy appears to have had no part in either of the German conventions of 1753 and 1838. for the equalization of silver coins. The Grand Duke has adhered to the old Leipsic footing, and continues to coin florins, or two-third pieces, either of fine silver or three-fourths fine, but equal in value. The smaller coins are pieces of 3, 4, and 1 *schilling*. The money of account is the thaler, divided into 3 marks, or 48 schillings.

* In Kelly's Cambist, this piece is called a *dollar* of ten livres, and it is said to be equal to the Spanish dollar, in currency. Probably its fineness is supposed to be of Spanish standard.

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-------------------|-----------|--------------------|-----------------|-------------------|--------------------|
| Ten thaler . . . | 1831 | Frederick Francis. | 204·5 | 896 | 7 89 1 |
| Florin . . . | 1790-1808 | do. | 265 | 753 | 53 7 |
| do. . . . | 1839-40 | Paul Frederick. | 203·5 | 988 | 54 1 |
| Eight schilling . | 1827 | Frederick Francis. | 103 | 440 | 12 2 |

MEXICO.

THE coinage of Mexico may be said to possess a more general interest than that of any other country, emanating as it does from the great mining region which chiefly supplies the world with silver. This circumstance would, indeed, add no importance to the coinage, if it were the national policy to export unwrought bullion; but, on the contrary, a large share of this is immediately made into coin, and finds its way abroad in that shape.*

During the long period that this country was held by Spain, it contributed, more than all the other Spanish possessions, to the supply of the famous *pillar dollar*, so well known in the four quarters of the globe. Twenty years ago this coinage ceased, and the dollars of independent Mexico, Peru, and Bolivia, maintaining the same character, have supplied its place in commerce. The pillar dollars have become scarce; and those that remain, being much worn, are of less value by tale than the new coinage, though they may be more esteemed in trade. The great bulk of the coinage, bearing the insignia of the King of Spain, was in fact American; and the particular colonies from which it issued, may be known by the mint-marks on the coins. But being stamped with the royal name and effigy, it is properly to be noticed under the head of *Spain*, up to the time of the separation of the old country from the new. In the case of Mexico, this is the year 1822.

* Formerly the exportation of unwrought gold and silver was prohibited; but of late years the restriction has been removed.

There is, indeed, a hiatus between the true Spanish and Mexican emissions, nearly coextensive with the duration of the revolutionary war. It was in this transition period, reaching from 1810 to 1820, that the well known *hammered* and *cast* dollars, as well as the now forgotten *Vargas* and *Morelos* pieces were issued. Of these irregular coinages some notice will be taken presently.

It was not until 1822, however, upon the accession of Iturbide as Emperor, that the devices on the coin were so permanently and authoritatively changed, as to mark the boundary line between the Spanish and the Mexican dollar or doubloon.

The reign of Iturbide lasted but one year, and only the mint at the capital issued coins in his name. In 1824 the provinces were united into a federal republic, and the legend *Republica Mexicana* has ever since appeared on the coins of all the mints.

The minting system of Mexico differs from that of other countries employing more than one establishment. The national mint is at the city of Mexico; but each mining province has its own institution, subject to the general laws of the coinage, but not to any supervision or control, out of itself. Such a system does not necessarily lead to a difference in the value of the coins, nor is any difference made, in commerce; the issues of all the mints being current interchangeably, under the general name of Mexican. However, a want of surveillance, or mutual understanding, leaves an open door for departure from uniformity; and upon numerous assays of the dollars of the respective mints, it is ascertained that there are, or have been, well-marked and characteristic variations. Where these lie, and what is the extent of them, seems not to have been made public.* It will be one object of the present article, to state all our information upon that point.

The following are the locations of the Mexican mints, with the date of their establishment, so far as known; together with the distinguishing mint-mark of each, which always appears in the legend, immediately before the date.

Mint of the city of Mexico, established in 1535. Mint-mark, M^o.

Mint of Zacatecas; appears to have commenced in 1810; mark, Z^s.

Mint of Durango, 1811; mark, D^o.

Mint of Guanajuato, 1812; mark, G^o.

Mint of Chihuahua, 1811 to 1814; recommenced in 1832; mark, C^A.

Mint of Guadalajara, 1814; mark, G^A.

Mint of San Luis Potosi, 1829; mark, P^I.

Mint of the state of Mexico, at Tlalpan; the mint-mark of which is ME. Many of the Spanish dollars bear this mark, but the mint appears to have been discontinued

* The works of Bonneville, Darier, and Kelly, were published before the Mexican coinage commenced; and the recent works of Andreits and Becher take no notice of the subject.

for some years, and revived again in 1829; it is doubtful whether it has been in operation since 1831.

In the gold coinage there is considerable irregularity as to fineness; thus a specimen of Guanajuato resulted 860 thousandths fine, and one of Durango 832. But the general range of fineness is from 864 to 871, and 866 is found to be the proper computation for a mixed parcel. This last is the usual report upon doubloons of the mint of the city of Mexico, where most of the gold is coined. As the gold coins are not often received here, and are of small circulation in comparison with the silver, no further remark is necessary than to refer to the tables for various assays.

The silver coinage, as already intimated, presents much irregularity both in weight and fineness; which will best be exhibited by remarks upon each mint.

Mint of Mexico. These dollars have always been among the best, though not uniform in fineness. The ensuing tables show that from 1830 to 1834 the fineness was 901 to 902 thousandths; for a few years after, it rose to 993 and 906; but in 1840 fell to 900. The weight is usually full. As to the amount of coinage executed, this mint, though at the capital, holds only the fourth place.

Zacatecas. The coinage of silver at this mint is nearly as great as that of all the others combined. Consequently, this issue gives a controlling character to mixed Mexican dollars; in every parcel, not assorted, a large proportion of the pieces are of Zacatecas. The fineness is inferior, ranging from 894 to 897. The weight is of late exceedingly irregular; dollars of 1840 have been found to vary from 392 to 440 grains, making a difference of nearly 12 cents, or 1 *real*, between one piece and another.

Durango. These dollars, though irregular, are of the best sort as to average value. New pieces vary nearly a pennyweight from each other. The mint ranks fifth as to the amount of coinage; so that the pieces are not abundant.

Guanajuato. The dollars of this mint occupy a medium rank as to value by count. The weight is not well adjusted, though a quantity will give a good average. The pieces occur very frequently in a promiscuous parcel, as the annual coinage ranks second in amount.

Chihuahua. The dollars of 1832-34 were of good weight and fineness. From that date to 1839 inclusive, we have seen no specimens. Those of 1840-41 are still better than before, and are in fact the most valuable dollars in the market, yielding nearly 103 cents each. But the amount of annual emission is the lowest in the list.

Guadalajara. The coinage at this mint has been by far the most irregular of all. Various assays of 1832 and 1835 yielded only 840, 870, 884 thousandths; making a fluctuating value of 94 to 99 cents, at the usual weight of 416 grains, which they

maintained. The presence of these dollars in deposits at the mint, tended very much to depress the returns, and to make them unsteady. But from the year 1836 to 1840, a remarkable change has taken place in them; the weight is full and well adjusted, and the fineness has been increasing from 893 to 904 thousandths; so that now they are among the best. We are not aware of the cause of this improvement, but the effect of it upon the general character of Mexican coin has been beneficial. The coinage at this mint is less in amount than that of any other, except Chihuahua.

*Potosi** is the last mint to be mentioned; the coinage of which has been repeatedly assayed here in distinct parcels, of the dates of 1835 to 1839. It has always been in the first rank as to value, and is now in the third as to the amount coined.

From numerous returns of deposits made here for recoinage, it appears that a sum of one thousand dollars, taken from ordinary circulation, and therefore depreciated by wear, will yield about $1001\frac{1}{2}$ dollars in our money. The same amount, scarcely worn, will be worth from 1003 to 1008 dollars. This estimate is without respect to assortments of the different mints; where this is done, the return may be forced to a higher amount. It might be supposed, from the results in our tables, that the average product would be greater than as above stated, and that one per cent. would be a common gain. It would be so, were it not that the dollars of Zacatecas and Guanajuato are so much more abundant than the rest, and that occasionally an old Guadalajara piece, or a counterfeit, reduces the general result.†

Mexican dollars began to be recoined here immediately after their first appearance. In 1823 the amount of \$200,000 was deposited; in 1830 near two millions of dollars; and the same in 1838. In fact, they form the larger part of our coining material in silver.

The four classes of revolutionary dollars, already spoken of, require some further notice; the first two of them being still in the currency, though gradually disappearing. The *hammered* and *cast* dollars bear the royal head; the *Vargas* and *Morelos* were coins of republican generals.

1. *Hammered dollars.* About the close of 1810, the communication between the capital and the interior having been cut off by the revolutionary movements, it was found necessary to establish mints at some of the chief provincial towns. These could not be furnished with the requisite apparatus; and consequently the coins were shaped as well as they might be, and received their impressions with a hammer.‡

* This must not be confounded with the famous mint of Potosi, in Bolivia, which has a different mint-mark, and has been much longer in operation.

† Counterfeit Mexican dollars, many of them well executed, are but too abundant. They are noticed in Chapter IV. on Counterfeit Coins.

‡ Letter of HON. BERNARDO GONSALEZ, Superintendent of the Mint of Mexico.

It is from this circumstance that their name is derived; and they are recognised by their beaten surface, and by the half-revealed legends and royal head. These pieces are often received along with the true Spanish dollars, by persons not skilled in them. Nevertheless they are decidedly inferior, as well as irregular. The weight varies from 370 to 440 grains, making the enormous difference of 70 grains. The fineness varies from 865 to 885 thousandths. Any individual piece may be worth from 36 to 105 cents; but the great majority are nearer 95 cents, which is the average. In Mexico they are said to be current at six reals, or three-quarters of a dollar. Towards the close of the war, these mints seem to have procured better machinery, and more skilful managers; at least, we find Spanish dollars of Zacatecas and Guadalajara of 1821, of full weight and fineness, and well executed.

Hammered dollars were formerly received at this mint in considerable quantities, but they are becoming scarce.

2. *Cast dollars.* These also are a revolutionary coinage, but in every respect different from the kind just noticed. They are said to have been minted at Chihuahua, in the years 1811 to 1813,* though some of them bear the mint-mark M^o., and the dates of 1804 to 1813. But these dates and marks are no proof of the true time and place of their emission; for it is evident that they are casts, and that the moulds were made from any Spanish dollars at hand, whether they bore the head of Carolus or Ferdinand. They are called cast or sand dollars from this circumstance; and the impressions, though quite distinct, have a blurred and coarse appearance, wanting the smoothness and sharpness of a stamped coin.†

The cast dollars differ excessively in weight; we have observed the extremes of 364 and 496 grains. Their fineness is not so uncertain, and may be averaged at 916 thousandths, which is much above that of the best Spanish dollars. Their value, therefore, ranges from 90 to 122 cents; the mean rate is 103 cents. These pieces occasionally appear here in mixed deposits. An unpractised person would be likely to reject them as spurious; but as they are better than any other sort, a knowledge of them is of some use. It is difficult to understand how the mistake occurred, of making them so much finer than they ought to be, especially in a time of revolution, when depreciation is more likely to be practised.

3. *Vargas dollars.* These are pieces coined at Sombrerete, by the republican general Vargas, whose name is in the impression. They are of the dates of 1811 and 1812, and are struck with a hammer. Very few specimens are now met with. Their weight and fineness will appear in the tables.

4. The *Morelos dollars* are the last variety to be mentioned. These were coined

* Letter of Mr. Gonzalez.

† Some metals, particularly iron, will receive a fine and sharp impression from casting; but silver and gold contract while chilling in the mould, and therefore present an obtuse, imperfect appearance.

by General Morelos, a patriot chief of the revolution. The pieces were cast in moulds, and are sufficiently uncouth to be mistaken for Mexican antiquities, were it not for the Christian date upon them. On one side is represented a bow, with the single word *Sud*, indicating "the army of the south;" on the other side only the letters M^o, 8 R., and the date 1812 or 1813. There was a complete series of these, from the dollar down to the sixteenth. Their value is shown in the table; but they are now important only as curiosities.

The standards of Mexican coin are the same as those of Spain since 1772; and the legal fineness is always stamped on the piece. There are four denominations of gold: the doubloon of sixteen dollars, the half, the quarter or pistole, and the eighth or escudo. These should be 21 carats or 875 thousandths fine; the weight should be $8\frac{1}{2}$ doubloons to the mark of Castile,* or 418 troy grains to the doubloon.

Of silver there are five denominations; the dollar or *peso*, which is the piece of eight *reals*; the pieces of four, two, one, and one-half real, the last being also called a *medio*. Before the revolution there was also a half-medio, or $\frac{1}{2}$ of the dollar. These should be 10 *dineros* 20 *granos*, or 903 thousandths fine, and the dollar should weigh the same as the doubloon.

In regard to the production of Mexican mines, there are some statistics and many conjectures; whatever we have to observe on this point must be deferred.† The amount of coinage, for many years prior to the revolution, averaged nearly twenty-three millions of dollars annually; about one-twentieth being in gold. The annual average is now only twelve millions.‡

GOLD COINS.

| DENOMINATION. | DATE. | WHERE COINED. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|----------------|-------------|------------------------------------|-----------------|---------------------|--------------------|
| Doubloon . . . | 1822 | Mint of Mexico. Augustin, Emperor. | 416.5 | 864 | 15 49 8 |
| do. . . . | 1824-30 | do. Mexican Republic. | 416.5 | 865 | 15 51 6 |
| do. . . . | Promiscuous | do. | 417 | 867 | 15 57 |
| do. . . . | do. | do. | 417 | 868 | 15 58 8 |
| do. . . . | do. | do. | 417 | 869 | 15 60 6 |
| do. . . . | do. | Guanaxuato. | 417 | 861 | 15 46 2 |
| do. . . . | do. | do. | 417 | 860 | 15 44 4 |

* The Castilian mark is variously rated from 3550 to 3554 troy grains. The medium of 3552 is assumed.

† See Appendix.

‡ See Appendix for full statistics.

GOLD COINS (CONTINUED).

| DENOMINATION. | DATE. | WHERE COINED. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|----------------|-------------|-----------------------------|-----------------|---------------------|--------------------|
| Doubloon . . . | Promiscuous | Mint of Guanajuato. | 417 | 867 | 15 57 |
| do. . . . | do. | Durango. | 417 | 868 | 15 58 8 |
| do. . . . | do. | do. | 417 | 865 | 15 53 4 |
| do. . . . | 1833-36 | do. | 417.5 | 872 | 15 67 9 |
| do. . . . | Promiscuous | Guadalajara. | 416 | 865 | 15 49 7 |
| do. . . . | do. | Average, promiscuous mints. | 416.5* | 866 | 15 53 4 |

SILVER COINS.

| DENOMINATION. | DATE. | WHERE COINED. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|----------------|---------|---------------------------------------|-----------------|---------------------|--------------------|
| Dollar | 1822-23 | Mint of Mexico. Augustin, Emperor. | 416 | 898 | 1 00 6 |
| do. . . . | 1830-34 | do. Mexican Republic. | 416 | 901 | 1 01 |
| do. . . . | 1835 | do. | 416 | 906 | 1 01 5 |
| do. . . . | 1836 | do. | 416.5 | 904 | 1 01 4 |
| do. . . . | 1837 | do. | 416.5 | 903 | 1 01 3 |
| do. . . . | 1840-41 | do. | 416.5 | 902 | 1 01 2 |
| do. . . . | 1834-35 | Zacatecas. | 415.5 | 896 | 1 00 3 |
| do. . . . | 1836 | do. | 416.5 | 898 | 1 00 7 |
| do. . . . | 1837 | do. | 408 | 895 | 98 4 |
| do. . . . | 1840 | do. | 414 | 895 | 99 8 |
| do. . . . | 1841 | do. | 414 | 897 | 1 00 |
| do. . . . | 1833-35 | Guanajuato. | 416 | 894 | 1 00 2 |
| do. . . . | 1837 | do. | 412.5 | 900 | 1 00 |
| do. . . . | 1838 | do. | 417 | 901 | 1 01 2 |
| do. . . . | 1840-41 | do. | 417 | 896 | 1 00 7 |

* Single pieces vary a grain or two from this weight. One grain makes a difference of 3½ cents in the value.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | WHERE COINED. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|----------------------------|---------|-------------------------------|-----------------|-------------------|--------------------|
| Dollar . . . | 1833-34 | Mint of Durango. | 415 | 904 | 1 01 1 |
| do. . . . | 1837-39 | do. | 417 | 902 | 1 01 3 |
| do. . . . | 1835 | Potosi. | 417 | 902 | 1 01 3 |
| do. . . . | 1837-41 | do. | 416.5 | 901 | 1 01 1 |
| do. . . . | 1833 | Chihuahua. | 417 | 899 | 1 01 1 |
| do. . . . | 1840-41 | do. | 420 | 907 | 1 02 6 |
| do. . . . | 1832 | Guadalajara. | 416.5 | 883 | 99 1 |
| do. . . . | 1835 | do. | 416 | 840 | 94 2 |
| do. . . . | 1835 | do. | 416 | 870 | 97 5 |
| do. . . . | 1835 | do. | 416.5 | 884 | 99 2 |
| do. . . . | 1836 | do. | 416.5 | 895 | 1 00 4 |
| do. . . . | 1840 | do. | 417 | 904 | 1 01 5 |
| do. . . . | 1824-35 | Av. of all mints, in parcels. | 415 | 896 | 1 00 2 |
| do. . . . | 1836-41 | do. | 416.5 | 898 | 1 00 6 |
| Half dollar, or 4 reals | 1827 | Mexico.* | 207 | 905 | 50 4 |
| do. . . . | 1831-36 | Zacatecas. | 206 | 898 | 49 8 |
| do. . . . | 1835-38 | Guanaxuato. | 206 | 901 | 50 |
| Quarter dollar, or 2 reals | 1825-28 | Mexico. | 102.5 | 902 | 25 |
| do. . . . | 1824 | do. (<i>agachado</i>).† | 101 | 898 | 24 4 |
| do. . . . | 1824 | Guanaxuato. | 100 | 900 | 24 2 |
| do. . . . | 1832-34 | do. | 103 | 893 | 24 6 |
| do. . . . | 1825-30 | Zacatecas. | 103 | 897 | 24 7 |
| do. . . . | 1832-35 | do. | 105 | 898 | 25 4 |

* Half-dollars are not often struck; the quarters are much more abundant, and frequently appear in our circulation.

† In 1824 there were dollars and parts coined at Mexico and Durango, on which the head of the eagle is turned downward. These were called *agachados*, or "hooked;" and an impression prevailed that they were of less value than other pieces. The late W. H. Keating, Esq., in a letter to the Director of the Mint, observed that "A miner, to whom any such were offered, would be sure to ask to have them changed; still they were not refused." Our assays prove that they are not deficient.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | WHERE COINED. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-------------------|----------|----------------------------|-----------------|-------------------|--------------------|
| Hammered dollar . | 1811-18 | Zacatecas and other mints. | 404 | 880 | 95 4 |
| Cast dollar . . | Various. | Various. | 417 | 916 | 1 03 |
| Vargas dollar . . | 1811-12 | Sombrerete. | 405 | 890 | 97 1 |
| Morelos dollar . | 1812-13 | Not known. | 407 | 880 | 96 4 |

MILAN.

THE region of country lying in the northern part of Italy, of which Milan is the capital, has so often changed its name as to leave some doubt where it is to be placed, in an alphabetical arrangement. Within half a century it has successively been known as the Duchy of Milan, the Cisalpine Republic, the Italian Republic, the Kingdom of Italy, and the Lombardo-Venetian kingdom.

Before 1797 the Duchy of Milan was an appendage of the Austrian empire, but with a distinct system of coinage. In that year the territory was overrun by the French army, under Bonaparte, and was erected into a separate government, called the Cisalpine Republic; and silver coins of an appropriate type were issued. Rapid changes, however, passed over this country, which in those times was the battleground in which the fate of all Europe was involved. In 1800 it reverted to Francis of Austria; two years after, it became the Italian Republic, with Napoleon Bonaparte as its President; and in 1805 was changed to the Kingdom of Italy, under the same domination. From time to time it was enlarged by the annexation of Venice, Ragusa, and some of the Papal territories.

Amidst the reorganizations, or rather reversions, which took place upon the overthrow of Napoleon in 1814-15, Lombardy was restored to the Emperor of Austria; in whose hands, being now consolidated with Venice into the Lombardo-Venetian kingdom, it has since remained.

The monetary unit of this country is the *lira*, or *livre*, divided into 20 *soldi*. This has been repeatedly changed in value; the tables will show that before 1797 it was 14·2 cents, under Napoleon 18·6 cents, and now 16 cents, of our money.

The system of coinage from 1804 to 1815 was the same as that of France, the

lira and franc being interchangeable. Since that date the coinage is on a different basis, being blended with that of Austria. (For the legal regulations, see articles *France and Austria*.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-----------------------|---------|----------------|-----------------|-------------------|--------------------|
| Zecchino, or sequin . | 1770 | Maria Theresa. | 53·5 | 990 | 2 28 1 |
| do. | 1784 | Joseph II. | 53·5 | 990 | 2 28 1 |
| Doppia, or pistole . | 1783 | do. | 97·5 | 908 | 3 81 3 |
| Forty lire . . . | 1805-14 | Napoleon. | 199 | 899 | 7 70 5 |
| Twenty lire . . . | 1805-14 | do. | 99·5 | 899 | 3 85 2 |
| Sovereign . . . | 1831 | Francis I. | 174·5 | 898 | 6 74 8 |
| do. | 1838 | Ferdinand I. | 174·5 | 901 | 6 77 1 |
| Half sovereign . | 1839 | do. | 87 | 902 | 3 38 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|---------------------|---------|---------------------|-----------------|-------------------|--------------------|
| Scudo of six lire . | 1778 | Maria Theresa. | 352 | 898 | 85 1 |
| Lira | 1780 | do. | 95 | 550 | 14 1 |
| Scudo | 1798 | Cisalpine Republic. | 354 | 898 | 85 6 |
| Five lire . . . | 1805-14 | Napoleon. | 384 | 902 | 93 3 |
| Two lire . . . | 1805-14 | do. | 154 | 902 | 37 4 |
| Lira | 1805-14 | do. | 76 | 902 | 18 5 |
| Ten soldi . . . | 1805-14 | do. | 38 | 902 | 9 2 |
| Five soldi . . . | 1805-14 | do. | 19 | 902 | 4 6 |
| Half lira . . . | 1822 | Francis I. | 33 | 900 | 8 |
| Quarter lira . . | 1822 | do. | 24·5 | 590 | 3 9 |
| Scudo | 1839 | Ferdinand I. | 401·5 | 902 | 97 6 |
| Half scudo . . . | 1839 | do. | 201 | 902 | 48 8 |
| Lira | 1839 | do. | 67 | 900 | 16 2 |
| Half lira . . . | 1839 | do. | 33·5 | 900 | 8 1 |
| Quarter lira . . | 1839 | do. | 25 | 606 | 4 1 |

MOROCCO.

This country is one of the Barbary states in the north of Africa, and by courtesy rather than by claim, is usually ranked as an empire.

The coins of the neighbouring country of Spain are current here, but Morocco has also a coinage of her own, executed in a truly barbarian style. The monetary system is as follows: six *filse* (copper) are equal to one *blankeel*, formerly a coin, but now imaginary; four *blankeels* make one silver ounce, *ukiah*, or *dirhem*; and ten of these are equal to one *miscal*, a money of account. A Spanish dollar of the Peninsula passes for 15 ounces; a *pillar* or Spanish-American dollar is held at 16. (This is purely a commercial distinction; intrinsically, one dollar is as good as the other.) A Peninsular dollar is also equal to $1\frac{1}{2}$ *miscals*. There was formerly a dollar or *real** coined in Morocco, of full value; but it is now almost out of circulation. The only gold coin is the *buntagui*, equal to two dollars.†

Many years ago, a service of gold plate was sent by the King of Spain as a present to the Sultan. His religion did not permit him to accept it; but not willing altogether to decline the courtesy, he sent it back with a request that it might be made into coin. The Spanish monarch accordingly converted it into half-doublons, or eight dollar pieces, impressed with Moorish characters, but with the designation "Struck at Madrid." These are now very scarce, having generally been carried away to other countries, as curiosities.

NAPLES AND SICILY.

A PROPER understanding of the coinage of the Two Sicilies will require a slight review of the recent history of the nation. Its former entanglement with Spain, and the legend *Hispaniarum Infans*, still impressed on the coins, causes some perplexity in discriminating between the moneys of the two countries. Unskilful persons sometimes pronounce a Neapolitan piece to be Spanish.

* On page 10 this piece is erroneously named a *miscal*. It is engraved in Plate XV., No. 10.

† For information upon these moneys we are indebted to J. F. MULLOWNEY, Esq., long a resident, and now U. S. Consul in Morocco.

After a protracted strife between the houses of Bourbon and Austria, Charles VII., second son of the King of Spain, ascended the throne of Naples and Sicily, in the year 1735. In 1759 he was called to rule over Spain, as Charles III.; being succeeded at Naples by his son Ferdinand. This monarch was Ferdinand IV. of Naples, and III. of the island of Sicily,* until his second deposal by Napoleon; but upon his reaccession, assumed the title of Ferdinand I. both of Naples and Sicily. Much confusion will be avoided by bearing in mind these distinctions, and that Ferdinand I., III., and IV. are all the same person. In this reign, various changes took place in the silver coinage; a new standard was decreed in 1734, and another in 1795. Having joined in the alliance against the French Republic, Ferdinand was overcome by the invading army of that nation, and in 1799 his kingdom was converted into the *Neapolitan* or *Parthenopian Republic*. Silver coins, of a single denomination, were issued under this government. After various successes and defeats, Ferdinand regained his throne by treaty, in 1801. The currency was now so perplexed that it was judged necessary to call in the silver for recoinage, upon a uniform and simple system; which took place in 1805. Little more than a year elapsed, however, before the Napoleon dynasty was established in Naples, in the person of Joseph; Ferdinand retiring to Sicily, where he maintained a precarious dominion. In 1803 Joseph was called away to supplant another Ferdinand of the Spanish line in Spain. He had made no alteration in the Neapolitan coins, except as to their devices. Joachim, Prince Murat, succeeded to the throne. The system of coinage remained unaltered until the year 1813, when the French standards were introduced; the new *lira*, corresponding to the *franc*. Two years after, the face of affairs having been entirely changed throughout Europe, by the fall of Napoleon, Joachim forfeited his crown, and with it his life, and Ferdinand returned from the island, to reassume the dominion of the Two Sicilies. The French system of coinage fell with its patron. A new monetary code was promulgated in 1813, restoring the former standards, with some modifications as to the gold. No alterations have since been made. In 1826 Francis I. succeeded to the throne; and in 1830 Ferdinand II., the reigning sovereign.

To avoid too much detail upon a coinage somewhat intricate and not generally important, it will be sufficient here to state the legal standards of 1813, referring to the ensuing tables for actual assays prior to that date. The money of account is the silver ducat, (*ducato di regno*), which was formerly an actual coin, but has not been so for half a century past. This is divided into 10 *carlini*, of 10 *grani*, or grains. On the island, the money of account is the *onzia*, of 30 *tari*; the *taro* being equal to the *carlino*, of Naples.

* On Sicilian coins, before 1800, he is styled Ferdinand, simply. A piece of 1810 designates him as Ferdinand III. The subsequent title, Ferdinand I., was doubtless assumed with a view to consolidate the two branches of the realm.

The gold coin of the law of 1818 is of four denominations; the decuple of 30 ducats, the half-decuple, the double ounce (*onzia*) of 6 ducats, and the ounce of 3 ducats. The legal fineness is 996 thousandths; the weight of the decuple, 42½ *trappesi*, or 574 troy grains;* the others in proportion. No gold was coined for four or five years previous to 1839; preparations were then making for a new emission, but no specimens have been seen here.

The silver coin is of five denominations; the *scudo* of 12 *carlini* (equal to 1½ *ducati*), the half-scudo, and the pieces of two, one, and one-half carlin. These are all five-sixths fine (833 thousandths), and the largest piece should weigh 31½ *trappesi*, or 425.4 troy grains; the others in proportion.

The Spanish dollar is made current by law at 125 *grani*.

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|----------------------------------|-------|-------------------|-----------------|---------------------|--------------------|
| Two <i>onzie</i> , or six ducats | 1783 | Ferdinand IV. | 135 | 893 | 5 19 2 |
| Onzia of Sicily . . | 1751 | Charles. | 68 | 859 | 2 51 6 |
| Twenty lire . . . | 1813 | Joachim Napoleon. | 99 | 900† | 3 84 8 |
| Onzia | 1818 | Ferdinand I. | 58 | 995 | 2 48 5 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|--------------------------|---------|------------------------------|-----------------|---------------------|--------------------|
| Scudo, of twelve carlini | 1783 | Ferdinand IV. | 390 | 900 | 94 5 |
| Silver ducat, of ten do. | 1784-85 | do. | 348 | 842 | 78 9 |
| Scudo, of twelve do. | 1786-98 | do. | 422 | 835 | 94 9 |
| do. | 1791 | Ferd. IV. and Mary Caroline. | 422 | 842 | 95 7 |

* Letter of ALEXANDER HAMMETT, Esq., U. S. Consul at Naples. Mr. Hammett states that the pound of Naples is divided into 12 ounces, the ounce into 30 *trappesi*, and the *trappeso* into 20 acini, making 7200 acini to the pound, and is equivalent to .84417 of the troy pound, or 4862.4 troy grains. Kelly (apparently relying on Bonneville) makes 4950 grains the equivalent. The difference is large, and we have no means of deciding which is correct; but Mr. Hammett's basis is taken, as being the latest and most direct authority; and especially as he appears skilled in these subjects.

† This fineness is assumed.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. TROUS. | VALUE. D. C. M. |
|-------------------|---------|-------------------|-----------------|---------------------|--------------------|
| Carlin . . . | 1791-95 | Ferdinand IV. | 34 | 835 | 7 6 |
| Scudo of Sicily . | 1785-99 | Ferdinand. | 419 | 830 | 93 7 |
| Scudo . . . | 1799 | Republic. | 422 | 835 | 94 9 |
| do. . . . | 1805 | Ferdinand IV. | 422 | 835 | 94 9 |
| do. . . . | 1808 | Joseph Napolcon. | 423 | 835 | 95 1 |
| do. . . . | 1810 | Joachim Napolcon. | 421 | 835 | 94 7 |
| Lira . . . | 1813 | do. | 76 | 900* | 18 5 |
| Scudo of Sicily . | 1810 | Ferdinand III. | 420 | 835 | 94 5 |
| Scudo . . . | 1818 | Ferdinand I. | 424 | 835 | 95 4 |
| do. . . . | 1831-33 | Ferdinand II. | 425 | 830 | 95 |

N A S S A U.

THIS duchy, being one of the southern states of Germany, keeps accounts in florins. The coinage consists of the ducat, in gold, and the convention-dollar, crown, and new florin, besides smaller pieces, in silver. These are found to be of the same value as the coins of *Bavaria*, which see.

N E T H E R L A N D S.

THIS title is now appropriated to the territory which at different times has been designated as The United Provinces, Holland, and Batavian Republic. Formerly it included the Austrian or Belgic Netherlands, now known as the kingdom of Belgium. (For the coinage proper to this latter region, see article *Belgium*.)

* This fineness is assumed.

The political changes in Holland have been frequent within the last century. By the treaty of Aix-la-Chapelle, in 1748, the Dutch and Belgic provinces were sundered, and assigned to different rulers. William V. reigned as stadtholder over the former division, from 1766 until his expulsion in 1795, when the Batavian Republic was established. After undergoing various and rapid modifications, this form of government was changed to a monarchy, with Louis Bonaparte as its king. His reign extended from 1806 to 1810; after which Holland was formally incorporated into the French empire. Its nationality was restored in part some three years after; but it was not until 1815 that the government was settled, on which occasion Holland and Belgium were united as the kingdom of Netherlands, under the dominion of William I. This union was again sundered in 1830, since which time the two countries have remained distinct.

The coinage of the Netherlands displays something of the intricacy of its political history. Several series of coins were minted cotemporarily, for many years previous to the revolution; and at this day there are circulating about twenty different denominations of silver coin. Each of the seven provinces had its own mint, but the variety in the coinage is not materially due to this fact, since, in most cases, they conformed to a common standard, making only a difference in the legend.*

GOLD COINS. The *ryder*, of 14 florins or gulden, was legally of the weight of 6 *engels* 15 *as*, (153½ troy grains,) at 22 carats fine. This coinage seems to have ceased about eighty years since. The *ducat* is of the established rate of 53·8 troy grains, and the fineness 23½ carats, or 983 thousandths. No value is fixed by law to this coin; it is intended as an article of commerce, and is variously reckoned at 5¼ to 5½ florins. Ducats are largely exported to Russia, Turkey, and other countries.

The present gold coinage consists of pieces of 10 and 5 gulden, or guilders, the former weighing 6·729 grammes, and both of the fineness of nine-tenths. This coinage was instituted by the law of 1816.

SILVER COINS. For many years previous to the settlement of 1815, there were three series of silver coins; the rixdollar or "leg-dollar,"† the guilder, and the ducaton. The first class may be known by the figure of a knight in armour, with one leg hidden by a shield;‡ the second class bears a female figure, leaning on a pedestal; the third class is distinguished by the figure of a warrior on horseback, the

* The coins of Holland proper may be known by the word *Holl*, or *Holland*, in the device; those of Utrecht by *Tra*, or *Traject*.; of Zealand by *Zel*, or *Zeelandia*; of West Friesland, by *Westf*.; of Overysse by *Tran*., *Transisal*., or *Transisalanian*; of Gueldre by *Geldria*, and of Groningen by *Gron*. These distinctions have disappeared since the close of the last century.

† So called in Sir Isaac Newton's Tables. The device on the coin must have suggested the name. It is also called *patagon* and *daelder*.

‡ The old ten-schilling piece of Zeeland has this figure also, but with the motto "Emergo Luctor." This piece is of higher value than the rixdollar, being equal to three guilders.

horse being in a salient posture. The observance of these distinctions is the readiest way that we know of, to avoid confusion in these coins, which are of very different qualities of fineness.

The *rixdollar*, by legal regulation, weighed 8 *engels* $8\frac{1}{2}$ *as*, ($433\frac{1}{2}$ troy grains,) at 10 deniers $10\frac{1}{2}$ grains, or 870 thousandths fine. This piece is reckoned at $2\frac{1}{2}$ guilders, or 50 stivers; the half and quarter rixdollar in proportion. This coinage was continued by Louis Bonaparte, but ceased with his reign.

The *guilder* or florin weighed 6 *engels* $27\frac{1}{2}$ *as*, (163 grains,) at 10 deniers 23 grains, or 913 thousandths fine. There are also pieces of 3 florins, and a half-florin, of the same fineness and proportional weight. The guilder is the money of account, being divided into 20 stivers, or in more recent style, into 100 centimes. The stiver is equal to two cents of our money, as nearly as may be.

By the law of 1816 the guilder series (which was continued, to the exclusion of the other two,) was modified in its standards of weight and fineness, without altering the actual value. The weight of the guilder was fixed at 10.766 grammes, (166.2 troy grains,) and the triple and half-guilder in proportion; all of the fineness of 893 thousandths. Besides these, provision was made for pieces of $\frac{1}{4}$, $\frac{1}{10}$, and $\frac{1}{20}$ guilder, or 25, 10, and 5 centimes; the 25c. piece to weigh 4.23 grammes (65.2 grains), and the others proportionally—all of the fineness of 569 thousandths.

An entire change in the silver coins was decreed in 1839. The guilder, by that law, is to weigh ten grammes precisely, (154.3 grains,) at a fineness of 945 thousandths. The three-guilder piece gives place to one of $2\frac{1}{2}$ guilders, as the largest coin: this, as well as the fractional divisions of the guilder, are to be of the same fineness, and proportional in weight.*

The allowed deviations from the standards by the law of 1839, are small, beyond precedent. Thus the fineness of the gold coin must not vary more than from $899\frac{1}{2}$ to $900\frac{1}{2}$ thousandths; and the silver must be kept within $943\frac{1}{2}$ to $946\frac{1}{2}$.

The *ducaton*, or ducatoon series, was coined chiefly for the foreign trade in the East Indies; although this would not appear from the devices. Its standards were 21 *engels* $5\frac{3}{4}$ *as* (502.3 grains) in weight, and $11\frac{1}{4}$ deniers, or 938 thousandths in fineness. Its current value, in 1833, was 3.15 guilders. The latest date we have seen, is of 1804. The more modern coinage for the Dutch East Indies, is noticed under the head of *Malay Archipelago*.

* None of these pieces have been received here as yet; in fact, as late as July 1841 they were not yet circulating at home, as we learn from J. W. VANDENBROEK, Esq., U. S. Consul at Amsterdam. It is to this gentleman we owe the legal regulations of 1816 and 1839, together with specimens for assay.

GOLD COINS.

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------|-----------|-----------------|-----------------|---------------------|--------------------|
| Ducat . . . | 1770-1805 | Various. | 53·5 | 980 | 2 25 8 |
| do. . . . | 1810 | Louis Napoleon. | 53·5 | 980 | 2 25 8 |
| do. . . . | 1816-31 | William I. | 53·7 | 980 | 2 26 6 |
| do. . . . | 1833-39 | do. | 53·7 | 981 | 2 26 9 |
| Ten guilders . | 1816-39 | do.* | 103·5 | 899 | 4 00 7 |
| Five guilders . | 1816-39 | do. | 51·5 | 899 | 1 99 4 |

SILVER COINS.†

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|------------------|-----------|--------------------------|-----------------|---------------------|--------------------|
| Ducatoon . . | 1766-95 | William V., Stadtholder. | 500 | 938 | 1 26 3 |
| Half do. . . | 1766-95 | do. | 250 | 938 | 63 2 |
| Rixdollar . . | 1766-95 | do. | 428 | 872 | 1 00 5 |
| do. . . . | 1806 | Louis Napoleon. | 436 | 881 | 1 03 5 |
| do. . . . | 1808 | do. | 408 | 912 | 1 00 2 |
| Three guilders . | 1766-95 | William V. | 476 | 912 | 1 17 |
| Guilder . . | 1766-95 | do. | 161 | 912 | 39 5 |
| do. . . . | 1796-1805 | Batavian Republic. | 157 | 904 | 38 2 |
| Three guilders . | 1816-38 | William I. | 498 | 896 | 1 20 2 |
| Guilder . . | 1816-38 | do. | 166 | 896 | 40 1 |
| Half do. . . | 1816-38 | do. | 82·5 | 896 | 19 9 |
| 25 cent. . . | 1824-30 | do. | 65 | 569 | 10 |
| 10 cent. . . | 1824-30 | do. | 26 | 569 | 4 |

* One thousand ten-guilder pieces, as found in the circulation, will vary in weight from 4320 to 4324 dwts. This is a remarkable uniformity. The fineness, in parcels, never exceeds 899.

† There are still circulating in Holland many pieces of more than a century old, on which the figures 25, 30, 60, &c. may be seen, indicating so many stivers. The stiver being worth two cents of our money, their value is readily ascertained.

NORWAY.

Norge.

THIS country was formerly a part of the dominions of the King of Denmark, but in 1813 was transferred to Sweden. It has always preserved a separate national character, and has a distinct system of coinage.

There appears to be no gold coin peculiar to Norway. The silver coins consist of the *rigsdaler-species*, of 120 *skillings*, the half, of 60 *skillings*, the fifth, or 24 *skillings*, and the fifteenth, or 8 *skillings*, all coined at the rate of $9\frac{1}{4}$ dalers to the Cologne mark of fine silver. The standard fineness is 14 *lods* (375 thousandths), at which proportion, $8\frac{3}{4}$ dalers weigh a Cologne mark; equal to 445.8 grains to each piece. There are smaller pieces of four and two *skillings*, coined at the rate of $10\frac{2}{3}$ dalers to the fine mark.*

These are the old-established standards; no change was made at the time of the alterations of Swedish coinage, in 1830. However, the dalers of Norway, Sweden, and Denmark are interchangeable as to intrinsic value.

The daler of Norway may be distinguished from that of Sweden by the legend on the obverse; in the former, the word *Norges* comes before *Sveriges*; in the latter, this order is reversed. Before the separation from Denmark, the Norwegian coins were not to be distinguished from the Danish by the legend, but by the shield containing a lion rampant, and underneath, two hammers crossed, probably referring to the silver mines of Norway.

The silver mines at Kongsberg yielded 17,000 marks in the first half year of 1834;† and about the same amount in the whole of 1835.‡

* Letter of HELMICH JANSON, Esq., U. S. Consul at Bergen, to the Treasury Department, Aug. 1834.

† Consul's letter.

‡ Karsten's Archiv. The Norwegian mark equals 3857.7 troy grains; and a mark of fine silver would be worth \$10 39, in our money.

PERSIA.

PREVIOUS to the reign of Fatha Ali, which commenced in 1797, the most usual coins of Persia were the gold rupee, or *mohur*, and the silver rupee, or *ten-shahee*. These corresponded pretty nearly with the India coinage, of the same era. There were other pieces, of which the ducat or *ashrafi* was the most important, and of which there is a notice as early as 1724. This was of the European ducat or sequin weight, being three-fourths of a *miscal*, which is the normal money-weight of Persia.* Amidst the various changes in the coinage, it has retained its place and character, though now known by the name of *toman*. In the long reign of this monarch, extending to 1834, there were some changes in the monetary system. During the earlier years the toman was issued weighing 94 troy grains. From 1814 to 1824 the toman seems to have been reduced to $71\frac{1}{4}$ grains, or about one *miscal* in weight. The ducat was then a distinct coin.

Of the silver coinage in his reign, the *sahib-koran*, or *real*, until 1807 inclusive, weighed 159 grains. In the next year it was reduced to 143 grains or two *miscals*; and so continued, probably, to the close of his government.

In 1834 the present monarch, Mahomed Shah, grandson of Fatha Ali, succeeded to the throne. Under his reign the toman has been further reduced to $53\frac{3}{4}$ grains, so that it corresponds with the former ducat. The toman and its half are now the only gold coins. Of silver, the *sahib-koran* now weighs 83 grains, and its half, the *penebad*, in proportion. The copper coins are the *shahee* and its half.

The present relations of the coins are as follows: ten *shahees* equal one *penebad*; two of these, one *sahib-koran*; ten of these last, one *toman*.†

The coins of earlier date than the present century must be rare, as it is stated that the present monarch recoins the money of his predecessor, and even his own issues, of some years' standing; not so much to refresh their appearance, as to derive a revenue by making them of less weight.

The Persian mints (of which there are eight) are said to be supplied with gold and silver from the mines of Affghanistan; but to what extent is not known.

* The *miscal* is variously rated at 71 to $75\frac{1}{2}$ troy grains. Probably it is accurate enough to assume 72, which is exactly three dwts.

† For specimens of coins, with accompanying information, we are indebted to JOHN P. BROWN, Esq., late drogoman to the U. S. Embassy at Constantinople. It is needless to add that a Persian coin seldom if ever strays in this direction.

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|---------------|----------------------|----------------------------|-----------------|---------------------|--------------------|
| Toman . . . | 1214 (1799) | Fatha Ali Shah, Kajar.* | 94 | | |
| do. . . . | 1230-40 (1814-24) | do.† | 71·2 | 991 | 3 04 2 |
| Ducat . . . | Not dated. | do.‡ | 53·5 | | |
| Toman . . . | 1255 (1839) | Mahomed Shah, Shahinshah.§ | 53·7 | 965 | 2 23 3 |
| Half do. . . | 1252 (1837) | do. | 27 | 968 | 1 12 1 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------|-------------|------------|-----------------|---------------------|--------------------|
| Huzar-dinar . . | . . | Fatha Ali. | 106 | 952 | 27 1 |
| Sahib-koran . . | 1222 (1807) | do.¶ | 159 | 945 | 40 4 |
| do. . . . | 1223 (1808) | do. | 143 | 944 | 28 8 |
| do. . . . | 1255 (1839) | Mahomed. | 83 | 963 | 21 5 |
| Penebad . . . | 1250 (1835) | do. | 43·5 | | |

* The title *Kajar* was his family surname, or rather the name of the tribe to which his family belonged. This coin is from Marsden, who gives no fineness. Supposing it to be 990, the value would be just four dollars.

† The tables of Mr. Noton, Assayer at Bombay, give 69 to 73½ grains in weight; the fineness only 972. Our assay is from a single piece; the weight is from two pieces, which were alike.

‡ Not assayed, but evidently near fine gold; probable value \$2 28.

§ Shah-in-shah, signifies "king of kings."

|| From Noton's tables. We have no other knowledge of this coin.

¶ The *sahib-koran* seems to be identical with the *abbasi* of Kelly, and the *penebad* corresponds to the *mahmudi*. This assay is Noton's. Several pieces sent by Mr. Brown, of 1231 (1815), had small brass loops or eyes soldered to them. These are for the convenience of the Persian ladies, who string the coins by the loops, and hang them in festoons about their heads, as ornaments. Sometimes a hole is bored in the coin itself, for the insertion of the string. This latter practice is not exclusively Oriental.

P E R U.

THIS country declared its independence of Spain in 1821, but that dominion was not entirely shaken off until the close of 1824. The earliest specimens of patriot coinage noticed here, bear the date of 1822.*

The republic was divided in 1836 into the two distinct nations of North Peru and South Peru. This event is of course exhibited by the coinage. The most recent specimens, however, omit this distinction, and probably it is not destined to be a permanent one.

The system of coinage in Peru is the same as in Spain. Peruvian doubloons are somewhat scarce here, but the dollars are frequently recoined at this mint, and are occasionally met with in ordinary circulation.

There are at present three mints in the country; that of Lima is in North Peru, and has been long in operation; the mints of Cuzco and Arequipa are in South Peru. The mint-mark of the first is **M**, an involution of the letters **L I M A**; the next has Cuzco in full, and the last is distinguished by the abbreviation **AREQ.** These distinctions, besides their interest to the coin-collector, have a bearing upon the value of the various coins.

As in the case of Bolivia, the half and quarter dollars of South Peru of recent dates, struck at Cuzco and Arequipa, are greatly below the fineness of the dollars. This debasement, which was authorized by law, commenced in June 1835, and continued until February 1838. The pieces are generally about two-thirds fine, though by no means regular, and have a good appearance. The amount issued to June 1837 (two years) was 729,000 dollars, the real value of which was 533,000, yielding a profit to government of 196,000. They were therefore passed off for one-third more than they were worth.† But by a law of 1838 the half and quarter dollar were restored to their proper fineness, and thereafter were to be issued in the proportion of one-sixth in amount, of the annual silver coinage.

It is understood that there was no debasement of the Lima small coinage; we have had no specimens of later date than 1832.

* The state of the country in those times is curiously illustrated by some of the coins, which, after their issue by the republican party, have been restamped by the royalists, without obliterating the former impressions; as, for example, patriot dollars of 1822 are sometimes impressed with a crown and the date of 1824; so that both dates appear on the coin, and render its nativity, at first sight, ambiguous.

† British Statistical Tables for 1837. This was an operation in which private coiners would be very glad, and very likely, to participate.

Peru yields a large share of precious metals. The amount cannot be ascertained, as a considerable proportion leaves the country uncoined, and some of it in a contraband way. The annual coinage is about 120,000 dollars in gold, and two millions in silver.

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | MINT AND GOVERNMENT. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|------------------|---------|---------------------------|-----------------|-------------------|--------------------|
| Doubloon . . . | 1826-33 | Lima. Peruvian Republic. | 416·5 | 867 | 15 55 1 |
| do. | 1826-33 | Cuzco. do. | 416·5 | 871 | 15 62 3 |
| do. | 1837 | do. South Peru. | 416·5 | 866 | 15 53 4 |
| Dollar | 1822-35 | Lima. Peruvian Republic.* | 416 | 901 | 1 01 |
| Quarter dollar . | 1827 | Cuzco. do. | 105 | 902 | 25 5 |
| do. | 1828-32 | Lima. do. | 105 | 900 | 25 4 |
| Dollar | 1837-38 | do. North Peru.† | 415 | 904 | 1 01 |
| do. | 1837-38 | Cuzco. South Peru. | 414 | 904 | 1 00 8 |
| Half dollar . . | 1835 | do. Peruvian Republic.‡ | 208 | 650 | 36 4 |
| do. | 1836 | do. South Peru. | 207 | 667 | 37 2 |
| Quarter dollar . | 1835 | do. Peruvian Republic. | 102 | 654 | 18 |
| Half dollar . . | 1838 | Arequipa. South Peru. | 206 | 660 | 36 6 |
| Dollar | 1841 | Lima. Peruvian Republic. | 415 | 899 | 1 00 5 |

P O L A N D.

Polske.

THE political vicissitudes of this country form a conspicuous portion of European history. Once an extensive and powerful dominion, it now scarcely maintains a place in the list of nations. By various acts of partition, commenced in 1772 and

* The Lima dollars vary in weight from 388 to 437 grains, making a difference of 12 cents between one piece and another. The fineness varies from 899 to 905. The above is a fair average of weight and fineness. The Cuzco dollars are less irregular, varying from 409 to 418 grains. They are comparatively rare.

† The quarter dollars of Lima vary from 91 to 113 grains—or 22 to 27 cents.

‡ Vary in weight from 195 to 210 grains; in fineness, 642 to 663.

finished in 1795, it was divided amongst the neighbouring powers of Russia, Prussia, and Austria. A portion of the territory was afterwards erected, by Napoleon, into the Duchy of Warsaw. In 1815, the new Kingdom of Poland was created, as a dependency of Russia, comprising only a small part of the ancient Polish nation. The remainder is incorporated with the respective countries above mentioned, and is known by the three divisions of Russian, Prussian, and Austrian Poland.

The integral money of account is the *zloty*, divided into 30 *groszy*.

The coins issued by King Stanislaus Augustus before the partition, were, the ducat at the usual rates of Germany, and then valued at 18 *zlotych*, but more recently at 19 to 20; the convention-thaler, at the German rate of "ten to the fine mark," current at 8 *zl.*, and its half at 4 *zl.*; the crown or thaler of $14\frac{1}{2}$ to the fine mark, valued at 6 *zl.*; besides lower denominations. From 1795 to 1815 the coinage received little attention. In the latter year, by an ukase of the Emperor Alexander, a new series of gold and silver coins was ordered, viz.: in gold, the *zloty krolewski* (royal *zloty*), equal to 25 silver *zl.* or $3\frac{3}{4}$ roubles of Russia; the fineness to be 88 *solotniks*,* or 917 thousandths; also, the double of this coin, at the same proportions.† In silver, the pieces of five, two, and one *zloty*, of $83\frac{1}{3}$ *solotniks* (868 thousandths) fine; in weight, at the rate of $17\frac{1}{3}$ pieces of five *zl.* to the fine mark of silver; also, for small coins, the pieces of ten and five *groszy*, at $18\frac{1}{2}$ *solot.* (193 thousandths) fine; the mark of fine silver to make 414 pieces of ten, or 828 pieces of five *gr.* In 1820 the denomination of 10 *zlot.* was added; this is the largest silver coin.‡ By an ukase of 1834, the gold piece of three roubles was made current in Poland at twenty *zlot.*; and pieces of ten and five *zlot.* in silver were coined, respectively equal to $1\frac{1}{2}$ and $\frac{3}{4}$ roubles of Russia, and designed for circulation in both countries.

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-------------------------|--------|----------------------|-----------------|---------------------|--------------------|
| Ducat . . . | 1791 . | Stanislaus Augustus. | 53.5 | 984 | 2 26 6 |
| Convention-thaler . | 1784 | do. | 430 | 833 | 96 5 |
| Thaler . . . | 1794 | do. | 370 | 688 | 68 6 |
| Five <i>zlotych</i> . . | 1831 | Independent Poland,§ | 240.5 | 872 | 56 4 |
| One <i>zloty</i> . . . | 1832 | Nicholas I. | 69 | | |
| do. | 1838 | do. | 48 | 872 | 11 3 |

* In Russia absolute fineness is expressed by 96 *solotniks*, each subdivided into sixth parts.

† It is not known here, whether these were actually issued. ‡ Becher, art. *Russland*. § Fineness assumed.

P O R T U G A L.

THE chronology of Portugal is closely connected with that of Brazil, and the reader is referred to that article for a statement of the royal succession, until the separation of the two countries. In 1826 Dona Maria, then aged only seven years, was proclaimed Regent of Portugal on the behalf of her father, Don Pedro, the Emperor of Brazil; but a vigorous contest for the throne was maintained by her uncle, Don Miguel, and it was not until 1833 that the queen was established in undisputed possession.

The silver coinage of Portugal was never of any great importance, out of its own territory; but the gold has long been familiar in the currency of the West Indies and of the United States, and at the principal commercial ports of the world. Few names in the money-vocabulary are better known than *moidore* and *half-joe*. Since Portugal has lost its command of the Brazilian gold mines, the importance of this coinage has dwindled away, not being sustained by fresh issues; in fact, a half-joe of later date than 1807, the era of the removal of the Portuguese Court to Rio Janeiro, is scarcely seen. Pieces of earlier dates are still presented here occasionally. The new gold coinage, established in 1835, is of small importance, even at home; and is considered rather as merchandise than as money, being always at a premium.

The moneys of Brazil, with some similarity in the devices and denominations, are essentially different from those of Portugal, and have therefore been separately treated.

To obtain a proper view of Portuguese currency, it is necessary to commence with the year 1688. At that date the gold coinage consisted of six denominations; the *dobrao* of 20,000 *reis*, the half-*dobrao*, the *moeda d'ouro* (*moidore*) of 4000, the half, quarter, and tenth of the *moidore*; the last being also called the *cruzado* of 400 *reis*. The legal fineness of all these was 22 carats (917 thousandths); the weight of the *dobrao* was equivalent to 830 grains troy; of the *moidore*, 166 grains; and the others in proportion. At the date just mentioned, the valuation of these pieces was enhanced by one-fifth; so that although the *dobrao*, for example, continued to bear on its face the figures 20,000, its lawful value was 24,000 *reis*; and so of the rest.

This *moidore* series (so called because that coin is the best known of the class) continued to be struck until the year 1732; but ten years earlier (1722) a new series was instituted, with entirely different devices, familiarly known as the Joannese or *joe* coinage. This consisted of seven denominations; the *Joannese* or *dobra* of

12,300 reis;* the half, of 6400; the quarter, of 3200; the *escudo* of 16 *tostoes* or 1600 reis; the *quartinho* or quarter moidore of 1200; the half *escudo* of 800, and the *cruzado* of 400. These also were of 22 carats fine, and the weight of the largest piece, one ounce of Portugal, equal to 442·8 grains troy;† the others in proportion.

The *Joannese* series seems not to have been displaced until 1835; but its valuation was altered by an edict of 1821, which provided that all the lesser gold coins should be called in, to be recoined into pieces of 6400 and 3200 reis; at the same time increasing the value of these to 7500 and 3750 reis respectively. Notwithstanding this advance, the gold coins bore a premium in market, so that in 1834 a piece of 7500 reis cost 7680 in currency.‡

Until 1797 the currency of Portugal was purely metallic; but in that year the government issued a large amount of paper money, in notes of 1200 to 20,000 reis each, bearing interest; and made it a legal tender in all transactions to pay half in specie and half in paper. The interest on these was paid for a few years, but eventually was withheld, and the paper fell, by successive stages of depreciation, until it reached to 35 per cent. below par.

In 1835, by a decree of the reigning queen, a new monetary system was established; the old names and divisions being abolished, and only the former rates of fineness retained. In this system the gold coins are the *coroa de ouro* (gold crown) of 5000 reis, and its half, of 22 carats fine; the *coroa* to weigh $2\frac{3}{4}$ *oitavas*, or 147·6 troy grains; the half in proportion. These rates are conformable to the valuation of the former piece of 7,500 reis, which weighs the same as the crown and half crown together.

The silver coinage prior to 1835 consisted of six denominations; the *cruzado* stamped 400 reis, but valued at 480, the half *cruzado* of twelve *vintens*, the piece of six *vint.*, the *tostao* or testoon of 100 reis, and the half testoon. These were formerly of the legal fineness of eleven *dinheiros* (917 thousandths), but for many years they have been minted at 899 thousandths. The lawful weight of the *cruzado* was equivalent to 226·6 troy grains, and the smaller pieces in proportion. The decree of 1835 instituted a new series, consisting of the *coroa* of 1000 reis, the half, of 500,

* There is some confusion in these terms, since the piece of 6400 reis, which has received, in English, the name of *half-joe*, seems properly to be the whole *Joannese*. But by affixing the number of reis, we shall avoid misunderstanding, if not mistake.

† The *mark* (8 ozs.) of Lisbon, according to Kelly, is equal to 3541½ troy grains.

‡ Letter of J. P. HUTCHINSON, Esq., U. S. Consul at Lisbon, to the Treasury Department, January 1834. From this letter we derive also some other statements.

The dealer in coins must be warned that there are spurious half-joes, not greatly inferior in fineness to the genuine coin, but very deficient in weight; some of these (by what authority is not known) bear the stamp of 20. Further reference will be made to these pieces in the chapter on Counterfeits. Many half-joes are also greatly reduced by filing and clipping, so that they can hardly be taken by tale.

and the pieces of 200 and 100 reis. The legal fineness is 917 thousandths, and the weight of the largest piece, 3 *oitavas* 13·58 *graos*; or at the rate of 7750 reis to the mark. The proportion of gold to silver is as 15·483 to 1.

The new coins, both of gold and silver, until a very recent date, were scarce in their own country, and could only be obtained by paying a premium on their nominal value. Thus in 1839 the gold crown cost 5300, and the silver crown 1040 reis; the Spanish dollar being held at 900 reis.* It is remarkable that copper coins form a large part of the currency, as in Brazil. In 1834 any debt could be lawfully discharged by paying one-half in government paper, one-third in silver, and one-sixth in copper. But the finances are now so much improved, that the legal tender is (as we learn verbally) three-fourths silver and one-fourth copper.

Accounts are kept in *reis* and *milreis*; and in stating a sum in figures, a division is made between the two, by inserting the *cifrao* or cipher \$; thus, 12 \$ 300 expresses "twelve mil. eight," or 12,300 reis.

There are gold mines in Portugal, but the produce is so small in comparison with the expense of working them, that the government has paid no attention to them since 1820.

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|------------------------|-----------|-------------------------|-----------------|---------------------|--------------------|
| Moidore . . . | 1689 | Peter II. | 165 | 908 | 6 45 2 |
| do. . . . | 1705 | do. | 165 | 928 | 6 59 4 |
| do. . . . | 1714-26 | John V.† | 165 | 913 | 6 48 8 |
| Half-joe, of 6400 reis | 1727-46 | do.‡ | 217 | 914 | 8 54 1 |
| Joannese . . . | 1730 | do. | 439 | 912 | 17 24 2 |
| Half-joe . . . | 1753-77 | Joseph I.§ | 219 | 914 | 8 62 |
| do. . . . | 1778-85 | Maria I. and Peter III. | 220 | 913 | 8 65 |
| do. . . . | 1787-1804 | Maria I. | 221 | 914 | 8 69 9 |
| do. . . . | 1822-24 | John VI. | 221 | 909 | 8 65 2 |
| Crown . . . | 1838 | Maria II. | 148 | 912 | 5 81 3 |
| Half do. . . . | 1838 | do. | 74 | 912 | 2 90 6 |

* Two sets of coins, with accompanying statements, were obligingly furnished by A. T. DONNET, Esq., acting Consul of the U. S. at Lisbon.

† Vary in fineness from 911 to 920. A moidore, clipped to the edge of the letters in the legend, weighed only 127 grains.

‡ Weight varied from 213 to 220 grains.

§ Weight, 214 to 223 grains.

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|--------------------|-----------|-----------------------|-----------------|---------------------|--------------------|
| Cruzado . . . | 1795-1826 | Maria I. and John VI. | 222 | 900 | 53 8 |
| do. . . . | 1833 | Maria II. | 226 | 908 | 55 3 |
| Six vintens . . | 1833 | do. | 55 | 898 | 13 3 |
| Crown of 1000 r. . | 1838 | do. | 456 | 912 | 1 12 |
| Half do. . . . | 1838 | do. | 228 | 912 | 56 |
| Piece of 200 r. . | 1838 | do. | 91 | 920 | 22 6 |
| Piece of 100 r. . | 1838 | do. | 46 | 920 | 11 4 |
| 12 macutas . . | 1789 | Maria I.* | 271 | 896 | 65 4 |

PRUSSIA.

Preussen.

IN 1701 this country changed its rank from a duchy to a kingdom. It has since been steadily increasing in territory, wealth, and political importance, so that it is now classed among the five great powers of Europe. The royal succession since 1701 has been as follows: Frederick I., 1701 to 1713. Frederick William I. to 1740. Frederick II. (the Great) to 1786. Frederick William II. to 1797. Frederick William III. to 1840. Frederick William IV. since June 1840, reigning sovereign.

The money of account is the dollar (*thaler*), which before 1821 was divided into 24 good (*gute*) *groschen*, but now into 30 silver (*silber*) *groschen*; subdivided into 12 *pfennige* each.

The most important statutes, regulating the coinage of Prussia, are those of 1750, 1821, and of the German Convention of 1838.

* The Portuguese have settlements, and claim dominion, in various parts of Africa. On the eastern coast they exert a limited authority over the strip of territory called *Mozambique*; and on the opposite shore, the kingdoms of Congo, Angola, and Benguela, in Lower Guinea. Gold and silver coins have been minted at different times for these colonies; as for example, the *milreis*, in gold, of the year 1755, worth about 79 cents; and the pieces of 12, 8, 6, 4 and 2 macutas, in silver; of which the largest is in the table. The series of macuta coins at Sierra Leone bears no relation to this. (See *Sierra Leone*.)

GOLD COINS. By the *Münzpatent* of July 1750, provision was made for the coinage of gold pieces, of 10, 5, and $2\frac{1}{2}$ thalers, (called also the double, single, and half *Frederickd'or*.) at the rate of 35 pieces of 5 thalers to the Cologne mark of gold, alloyed to $21\frac{3}{4}$ carats, or 261 loth-grains,* equivalent to 906 thousandths. The weight of the single Frederickd'or should be 103.13 troy grains. This rate of coinage originated in Brunswick; and was in fact employed in Prussia, a few years previous to the formal edict of 1750. The standard was not closely adhered to, towards the close of the last century; though of later years the ten and five-thaler pieces of Prussia are somewhat better than those of the other states in North Germany. By the law of 1821 the fineness was reduced to 260 loth-grains, or 903 thousandths; but no other change was made. Ducats were formerly coined, at the German rates, but apparently none since 1787.

SILVER COINS. In 1750 the rate of 21 florins or $10\frac{1}{2}$ thalers to the fine mark, was established as the Prussian moneys of account;† but in the coinage the thaler was at the rate of 14 pieces to the fine mark. This rate has continued ever since; and until the German convention of 1833 the specie thaler of Prussia was entirely different from that of other German states; except that in latter years it had been adopted by a few of the northern powers. By the convention just referred to, it was fully incorporated into the German mint-system, and bears a precise relation to the new florin of the southern states. The terms of this convention are explained at large under the head of *Germany*.

The Prussian thaler is of unusually low standard, being only three-fourths (750 thousandths) fine. The lesser denominations are, the one-third thaler, of two-thirds (667 thousandths), the one-sixth, of 8 loths 6 grains (521 thousandths), and the one-twelfth, or two good groschen, of 6 loths (375 thousandths). The weight of the thaler should be 343.76 grains troy, and its value, at the full standards, would be 69.4 cents; but as they are found in currency, the average scarcely exceeds 68½ cents. The statute of 1821 provided for an additional coinage of whole and half *silber-groschen*, at the rate of 30 gros. to the thaler, and of such weight that 106⅔ pieces shall be equal to one mark. The fineness is 64 loth-grains, or 222 thousandths.

The King of Prussia, as Elector of Brandenburg, coined convention-thalers as well as florins or two-third pieces, at the German rates, in the years 1794 to 1797. There is also a special coinage for *Neufchatel*, in Switzerland, of which he is the sovereign.

By the convention of 1833 the large piece of 2 thalers or $3\frac{1}{2}$ florins, was

* That is, 261 parts in 288.

† This rate, having been proposed by M. Graumann, then Director of the Mint, was commonly called the Graumannian basis (*Graumannischen Münzfuss*.) Becher, i. 30.

introduced into the Prussian coinage. The fineness of this coin is nine-tenths, and $6\frac{1}{2}$ pieces are to weigh a mark; making 572·9 troy grains to each piece. This coinage, at the close of 1840, had already amounted to near one million of pieces.

The whole amount of coinage of gold and silver, during twenty years ending with 1840, was a fraction over fifty millions of thalers; equal to thirty-six millions of dollars in our money. Of this sum, the silver constituted about three-fourths.*

There are two mints in the Prussian dominions, viz.: at Berlin and Dusseldorf. At Breslau there is an office for the assay of jewelry and plate.

Prussia produces annually about 23,000 marks of silver;† which (if fine) is equal to 230,000 dollars, in our money. (See Plate XI.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|---------------------|-----------|-------------------------|-----------------|---------------------|--------------------|
| Frederickd'or . . . | 1752-82 | Frederick II. | 102 | 901 | 3 95 8 |
| do. | 1795-96 | Frederick William II. | 102 | 897 | 3 94 |
| Ducat | 1787 | do. | 53·5 | 979 | 2 25 6 |
| Frederickd'or . . . | 1799-1812 | Frederick William III.‡ | 102 | 901 | 3 95 8 |
| Double do. | 1800-11 | do. | 205 | 898 | 7 92 8 |
| do. | 1831 | do. | 205 | 903 | 7 97 2 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|---------------------|---------|-----------------------|-----------------|---------------------|--------------------|
| Thaler | 1750 | Frederick II. | 338 | 754 | 68 6 |
| do. | 1764-86 | do. | 340 | 750 | 68 7 |
| One-third | 1768-86 | do. | 126 | 668 | 22 7 |
| One-sixth | 1764-73 | do. | 78 | 519 | 10 9 |
| Thaler | 1789-96 | Frederick William II. | 340 | 749 | 68 6 |

* The statistics of coinage are shown more at large in the Appendix.

For these and other valuable items of information, the Mint is indebted to his Excellency HENRY WHEATON, U. S. Envoy at Berlin.

† Karsten and Von Dechen's Archiv.

‡ Bonneville reports some pieces, early in this reign, as low as 893 and 892.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|---------------------|-----------|------------------------|-----------------|---------------------|--------------------|
| One-third thaler . | 1786-97 | Frederick William II. | 126 | 670 | 22 7 |
| One-sixth . . | 1796-97 | do. | 80 | 515 | 11 1 |
| Convention-thaler . | 1795 | do. (for Brandenburg.) | 430 | 830 | 96 1 |
| Two-third piece . | 1797 | do. do. | 265 | 750 | 53 5 |
| Thaler . . . | 1798-1803 | Frederick William III. | 340·5 | 745 | 68 3 |
| do. . . . | 1813-19 | do. | 341 | 748 | 68 7 |
| do. . . . | 1823-31 | do. | 343 | 750 | 69 3 |
| One-third . . | 1809 | do. | 126 | 667 | 22 6 |
| One-sixth . . | 1801-18 | do. | 80·5 | 517 | 11 2 |
| do. . . . | 1822-28 | do. | 81·5 | 526 | 11 5 |

R O M E.

THE moneys of the papal states will be considered from the year 1754, fifteenth of the pontificate of Benedict XIV., that being an era in the coinage. The succession of Popes since that date has been as follows: Benedict XIV., 1740 to 1758. Clement XIII., to 1769. Clement XIV., to 1775. Pius VI., to 1800. This Pope took an active part in opposing the French revolutionists; in return for which, his territory was invaded in 1797, and himself made prisoner in the year following. Rome was made a republic, and coins were struck, both gold and silver, bearing new devices, with the legend *Repubblica Romana*. But in 1800 the papal government was reinstated in the person of Pius VII. This sovereign held a precarious sway until 1809, when the territory was wrested from him and annexed to the empire of Napoleon. This condition of things lasted until the downfall of the Emperor in 1814, when Pius was restored to his chair, of which he held peaceable possession until his death in 1823. He was succeeded by Leo XII., 1823 to 1829. From this date there was an interregnum until 1831, when Gregory XVI., the reigning Pope, was elected. In this reign an important change has been made in the coinage.

We shall notice first the order of the coins from the year 1754, which, with a brief interruption at the time of the republican establishment, lasted until 1835.

The gold coins were, the *zecchino* or sequin, professedly coined of fine gold, at the rate of 99 pieces to the *libbra* or pound weight,* and of the legal value of 2.15 *scudi*; also the *doppia d'oro*, its double, and half, of 22 carats fine, (917 thousandths,) and at the rate of 62 *doppia* to the pound; the piece being valued at 3.15 *scudi*. Of late years, these coins were at a premium of two per cent. upon their lawful value.

The silver coins were of six denominations; the *scudo*, which is also the integral money of account, and is divided into ten *paoli* (pauls) or 100 *bajocchi* (cents); the half-scudo, the *testone* or testoon of three pauls, the *quinto* of two pauls, the paul of ten *bajocchi*, and the half-paul. These were by law eleven-twelfths fine, except the smallest piece, which was $10\frac{1}{2}$ parts in 12. The weight was at the rate of 12.83 *scudi* to the pound.†

The coins of the republic were, a large gold piece, weighing near 59 grammes, or 910 troy grains, and five-sixths (833 thousandths) fine, called the *scudo d'oro*; and a silver scudo, of the same weight as the papal coinage, but reduced to the French standard of fineness. This coinage, as it was short-lived, is doubtless extremely scarce, even where it belonged.

In 1835, under the present Pope, the coinage was thoroughly remodelled, and placed upon a decimal system, both as to its divisions and fineness. The gold coins are the pieces of ten and five *scudi*, the larger piece weighing by law 17.356 grammes (267.7 troy grains), the smaller in proportion, and both nine-tenths fine. The silver coins are of the same denominations as before; the *scudo* being of the weight of 26.898 grammes (415 troy grains), and the smaller pieces in proportion; the fineness is nine-tenths.‡ Hence, at the full rates, the gold piece of ten *scudi* would be worth \$10 37 6 in our money; the silver *scudo*, 100.6 cents. It will thus be seen that the Romish coins assimilate in many respects with those of the United States, the *scudo* and *bajocco* corresponding closely with our dollar and cent; but the ten-*scudi* is somewhat better than our eagle, owing to the higher relative valuation of gold in the United States.

The city and district of Bologna constitute a sort of republic within and under the papal jurisdiction, and possessing a distinct right of coinage. The gold and silver coins of Bologna are of the same denominations and value as those of Rome, except that from 1795 to 1797 (perhaps later) a *scudo* was coined by the "people and senate of Bologna" of different alloy from the ordinary *scudo* of ten pauls, and of

* The *libbra*, according to Kelly, is equal to 5234 troy grains.

† Letter of the U. S. Consul at Rome to the Treasury Department, March 1834, with a statement from the papal mint.

‡ Becher's *Ost. Münz.*, ii. 192. This author mentions also the *leonine*, of 4.40 *scudi*, a gold piece, coined since 1825.

somewhat greater value. The coins of Bologna are distinguished by the abbreviations BON. or BONON., and sometimes by the Latin name BONONIA, in full. We are not sure that this coinage has been renewed since the revolutionary times at the close of the last century. (See Plate XIV.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|----------------|---------|--------------|-----------------|-------------------|--------------------|
| Scquin . . . | 1775-83 | Pius VI. | 52·5 | 996 | 2 25 2 |
| Doppia . . . | 1777-86 | do. | 84 | 906 | 3 27 8 |
| do. . . . | 1800* | Pius VII. | 84·5 | 901 | 3 27 9 |
| Gold scudo . . | 1799 | Republic.† | 910 | 833 | 32 64 6 |
| Ten scudi . . | 1836 | Gregory XVI. | 267·5 | 900 | 10 36 8 |
| Five scudi . . | 1835 | do. | 134 | 900 | 5 19 4 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|----------------|---------|-----------------------|-----------------|-------------------|--------------------|
| Scudo . . . | 1780 | Pius VI. | 408 | 913 | 1 00 4 |
| Half scudo . . | 1775-85 | do. | 203 | 913 | 49 9 |
| Testoon . . . | 1796 | do. | 120·5 | 913 | 29 6 |
| Paul | 1775 | do. | 40 | 913 | 9 8 |
| Scudo | 1799 | Republic. | 408 | 899 | 98 8 |
| do. | 1800-02 | Pius VII. | 408 | 913 | 1 00 4 |
| do. | 1815 | do. | 408·5 | 925 | 1 01 8 |
| Testoon . . . | 1830 | <i>Sede vacante.</i> | 122 | 925 | 30 4 |
| Scudo | 1831-34 | Gregory XVI. | 408 | 925 | 1 01 7 |
| do. | 1835 | do. | 415 | 900 | 1 00 6 |
| Scudo | 1782 | Pius VI. for Bologna. | 408 | 913 | 1 00 4 |
| do. | 1797 | Senate of Bologna. | 456 | 842 | 1 03 4 |

* This coin bears no date; we assume 1800.

† From Bonneville. Kelly gives the gold scudo of the republic, as weighing 408 grains, (same as the silver scudo,) and 900 thousandths fine; which would make \$15 81 in value.

R U S S I A.

DURING seven reigns, from Peter the Great to Peter III. (1685–1762), the coins of Russia, both gold and silver, seem to have been in a fluctuating state as to their composition and intrinsic value. In the second year of the Empress Catharine II. (1763), a settled system was adopted, which remained in force until 1799, the third year of her immediate successor, Paul I. The alterations made by him were only in the silver, and those merely increasing the fineness and reducing the weight, without changing the intrinsic value. This alteration was confirmed by the ukase of Alexander I. in 1801. But by another monetary edict of the same Emperor, in 1810, the small silver coins were changed back to the old rates, so that while the rouble and its half were of the better alloy, the smaller pieces were of a worse, though of due weight to keep up their intrinsic value. In 1813 the small coins were restored to their former rates, and made uniform with the larger pieces. The ukase of 1817 seems to have been only confirmatory of former provisions.

In 1828 (third year of Nicholas, reigning Emperor,) a decree was promulgated for the coinage of *platinum*, in pieces of three roubles; in the following year, the denomination of six roubles, and in 1830 the piece of twelve roubles, were further ordered.*

In 1832 a silver coinage was projected, which was calculated to make a stronger bond of union between Russia and its dependency, Poland. The Russian rouble and the Polish zloty are in such a relation that one and a half of the former are equal to ten of the latter; a relation not forced, but of long standing. To facilitate the intercourse of the two nations, therefore, a series of coins was decreed, suitable for the currency of each, bearing Russian and Polish inscriptions; of which the ten-zlotych piece is the principal.

By ukase of 1834 the gold piece of three roubles or twenty zlotych was added to the coinage, to serve both for Russian and Polish currency.

The following are the existing legal standards of weight and fineness of the various denominations of gold, platinum, and silver coin.

* This metal was discovered by Wood, an assayer in Jamaica, in the year 1741. Its chief localities are Brazil, Colombia, St. Domingo, and Russia; the produce of the latter country greatly exceeds that of all the others, amounting to 1800 kilogrammes annually. (Chaudet—Ure.) It has all the properties which should classify it as a precious metal, but as it cannot be melted by furnace heat, and can only be wrought by welding, it is scarcely fit for the purposes of coinage, and therefore the example of Russia in this matter has been nowhere followed. We have seen no Russian piece of later date than 1837.

Of GOLD there are three denominations; the *imperial*, of ten roubles, the half-imperial, and the three-rouble piece. Of the first, none have been coined since the reign of Catharine II.; and the last was introduced in 1834. The legal weight of the imperial, since 1763, is $3\frac{3}{4}$ solotniks (201·75 troy grains), and the smaller pieces in proportion.* The legal fineness is 88 sol. or 917 thousandths.†

Ducats were coined as late as the reign of Paul I., of a variable weight, and fineness somewhat inferior to the German rate. There were also in the last century, some very small gold pieces of the imperial standard.

Of PLATINUM there are three denominations, of twelve, six, and three roubles. The largest should weigh 9 sol. 68 dol. (633 grains), and the others in proportion. They are professedly of "pure Oural platinum," the truth of which is confirmed by their specific gravity, which is 21. As this metal is scarce and of unsteady price, it is interesting to know what valuation has been found most expedient for it in Russia. The equivalent of one rouble in pure gold, in that country, is 18·5 grains; of the same in pure platinum, 53·16 grains; of the same in pure silver, 277·4 grains. Consequently platinum is there held to be worth $5\frac{1}{4}$ times as much as silver, and gold three times as much as platinum. In actual weight, the pieces of six and three roubles correspond with the legal rate.

Of SILVER there are ten denominations, of which six are Russian proper, and four Russian-Polish. The Russian are, the rouble of 100 copecks, its half, quarter, fifth, tenth, and twentieth; otherwise called the pieces of 50, 25, 20, 10, and 5 copecks. The Russian-Polish are, the 10 zlotych or $1\frac{1}{2}$ roubles, the 5 zl. or $\frac{3}{4}$ roub., the piece of 2 zl. or 30 cop., and the zloty, or 15 cop. piece. The standard fineness is $83\frac{1}{3}$ sol. (868 thousandths), and the weight of the rouble $4\frac{2}{3}$ sol. or 319·6 grains, the others in proportion. The mint-price of gold, whether in bars or in coin, as established in 1817, is 355 silver copecks for one solotnik fine; of silver, $22\frac{3}{4}$ cop. for one pound fine.

The amount of coinage in late years cannot be ascertained. In the time of Alexander I., from 1801 to 1811, the gold coinage is stated at nine millions of roubles. The platinum coinage from April 1828 to May 1832 amounted to 1500 pieces of 12 r., 11,600 pieces of 6 r., and 203,700 pieces of 3 r.‡

Russia is rich in mines of the precious metals. The whole product of gold, for ten

* The Russian pound contains 96 solotniks; the sol. contains 96 dolie. There is some difficulty in determining the equivalent of this pound. By the ukase of Alexander, in 1815, it was declared that a Cologne mark is equal to $54\frac{5}{8}$ sol., (see Becher, art. *Russland*,) which makes the pound answer to 6319·4 troy grains. According to Baron Humboldt, in a late essay, (Karsten's *Archiv.* for 1839,) the pound is deduced to be 6312·5 grains, and this is the equivalent given by the U. S. Consul at St. Petersburg, A. P. GIBSON, Esq., in a letter to the Treasury Department of July 1839. We feel justified in taking the basis of the Consul and of Baron H., as the more recent and direct. We are indebted to Mr. Gibson for specimens of coin.

† Absolute fineness is expressed by 96 solotniks; the sol. is divided into sixths.

‡ Becher's *Oest. Münz.*

years ending with 1833, was at an annual average of 375 *poods*, or about four millions of dollars in our money. The product of silver has not been ascertained here later than 1823; for five years previous it had averaged 3000 *poods* annually, which is about two millions of dollars. The amount of platinum in 1836 was 118 *poods*, or 62,130 troy ounces, but the annual average is stated to be 57,900 ounces, which, at \$6 30 the ounce, makes a yearly return of near \$400,000.*

Until very recently, accounts were stated in Russia in the paper rouble, worth a little over twenty cents in our money. When this paper money was created (reign of Catharine II.) it was equivalent to silver; the repayment being guaranteed by a pledge of the crown property, which is very extensive. The issues however were carried to so vast an amount, that at the era of the invasion of Napoleon, the paper rouble had fallen to less than one franc. It recovered somewhat from that extreme depression; but by a late ukase of Nicholas I., the effect of which was to terminate on the first day of January 1840, 3½ roubles in paper were valued at one of silver. It was also decreed, that from the same date all accounts and contracts should be stated in the silver valuation, and foreign exchanges were henceforth to be quoted on that basis only. Gold coins were to be received and paid in all government offices with an agio of three per cent.; that is, the *imperial* will be reckoned as equal to 10·30 silver roubles.†

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-------------------|---------|---------------|-----------------|-------------------|--------------------|
| Imperial . . . | 1756 | Elizabeth. | 253 | 915 | 9 97 |
| Double rouble . . | 1756 | do. | 50 | 915 | 1 97 |
| Imperial . . . | 1762 | Catharine II. | 253 | 915 | 9 97 |
| do. | 1766-81 | do. | 199 | 915 | 7 84 2 |
| Rouble | 1779 | do. | 19 | 915 | 74 9 |
| Half do. | 1777 | do. | 9·5 | 915 | 37 5 |
| Ducat | 1798 | Paul I. | 66 | 969 | 2 75 4 |
| Half-imperial . . | 1839 | Nicholas I. | 100·5 | 917 | 3 96 9 |
| Three roubles . . | 1838 | do. | 60·5 | 917 | 2 38 9 |

* See Appendix.

† London Courier, July 1839.

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT GRS. | FINESS, THOUS. | VALUE. D. C. M. |
|------------------|---------|------------------|----------------|----------------|--------------------|
| Rouble . . . | 1724 | Peter the Great. | 432 | 729 | 84 8 |
| do. . . . | 1725 | Catharine I. | 418 | 736 | 82 9 |
| do. . . . | 1750 | Elizabeth. | 398 | 792 | 84 9 |
| do. . . . | 1775 | Catharine II. | 360 | 757 | 73 4 |
| do. . . . | 1799 | Paul I. | 323 | 870 | 75 7 |
| do. . . . | 1801-14 | Alexander I.* | 318 | 875 | 75 |
| Half do. . . | 1811-19 | do. | 158 | 875 | 37 2 |
| Twenty copecks . | 1802 | do. | 62 | 875 | 14 6 |
| do. . . . | 1810 | do. | 72 | 760 | 14 7 |
| do. . . . | 1813 | do. | 63 | 877 | 14 9 |
| Rouble . . . | 1837-38 | Nicholas I. | 320 | 875 | 75 4 |
| Ten zlot. . . | 1835 | do. | 486 | 871 | 1 14 |
| Five zlot. . . | 1838 | do. | 236 | 871 | 55 4 |
| Half rouble . . | 1837 | do. | 160.5 | 875 | 37 8 |
| Quarter do. . . | 1836 | do. | 80 | 880 | 19 |
| Thirty cop. . . | 1838 | do. | 94 | 872 | 22 1 |
| Twenty cop. . . | 1837-39 | do. | 65 | 875 | 15 3 |
| Ten cop. . . . | 1839 | do. | 32.5 | 875 | 7 7 |
| Five cop. . . . | 1834-38 | do. | 16 | 875 | 3 8 |

SARDINIA.

PREVIOUS to the French invasion in 1792, the Sardinian monarchy comprised the states of Piedmont, Savoy and Nice, and the island of Sardinia. In 1796, by the treaty of Paris, Savoy and Nice were annexed to the French Republic, and Piedmont

* The silver coins both of Alexander and Nicholas are very unsteady in weight. The roubles of the former vary from 309 to 323 grains; the 10 zl. of the latter are from 482 to 492 grains. The fineness runs from 871 to 882 thousandths; the Russian coin seems slightly better than the Polish-Russian.

became the *Sub-Alpine Republic*, or *Eridania*. The King took refuge in the island, which alone was left to him. In 1802 this prince was succeeded by Victor Emanuel; and in the same year the Sub-Alpine Republic was suppressed, and the territories united to France. Affairs remained in this condition until the deposal of Napoleon in 1814, when the King recovered his continental states, with the addition of the City and Duchy of Genoa. Since that date the political order of Sardinia has not been changed.

The following is the order of succession. Charles Emanuel III. reigned from 1730 to 1773; Victor Amadeus III. to 1796; Charles Emanuel IV. to 1802; Victor Emanuel to 1821; Charles Felix to 1831; Charles Albert, reigning sovereign.

The obsolete standards need no notice; the corresponding coins are given in the tables. The French system was adopted for Eridania in 1800, and since the restoration in 1814 has been continued; the coins being of 80, 40, and 20 lire or francs, in gold, and 5, 2, 1, $\frac{1}{2}$, and $\frac{1}{4}$ lira, in silver. The larger pieces are frequently found among French coins, and are considered interchangeable with them; but the gold is scarcely equal in fineness.

The ancient Duchy of GENOA now constitutes a part of the Sardinian monarchy. This state coined its own money for centuries before the French invasion. In 1793, having been converted into the *Ligurian Republic*, it issued gold and silver coins, bearing the new title; the gold pieces were the *Genovine* of 96 lire, and its half; the silver were the *scudo* of 8 l. and its half, with smaller denominations. Assays of these will be given in the tables. Genoa retained its right of coinage after the annexation to Sardinia in 1814; but we have seen only the small piece of 10 *soldi* or half-lira, in silver, of that year; whether there has been any more recent coinage has not been ascertained here.

GOLD COINS.

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|--------------------|---------|---------------------|-----------------|---------------------|--------------------|
| Pistole . . . | 1773 | Victor Amadeus. | 148 | 905 | 5 76 8 |
| Carlino (island) . | 1773 | do. | 247 | 890 | 9 46 7 |
| Pistole . . . | 1786 | do. | 139 | 905 | 5 41 8 |
| do. . . . | 1797 | Charles Emanuel IV. | 139 | 905 | 5 41 8 |
| Marengo . . . | 1800 | Republic. | 98 | 898 | 3 79 |
| Twenty lire . . | 1815-21 | Victor Emanuel. | 99 | 898 | 3 82 9 |
| Eighty lire . . | 1821-31 | Charles Felix. | 398 | 898 | 15 39 2 |

GOLD COINS (CONTINUED).

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-------------------|---------|----------------------------|-----------------|---------------------|--------------------|
| Forty lire . . . | 1821-31 | Charles Felix. | 198 | 898 | 7 65 7 |
| Twenty lire . . . | 1831-36 | Charles Albert. | 99.5 | 898 | 3 84 8 |
| Genovine . . . | 1798 | Ligurian Republic (Genoa). | 388 | 908 | 15 17 2 |
| Half do. . . . | 1798 | do. | 193 | 908 | 7 54 7 |

SILVER COINS.

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-------------------|---------|--------------------|-----------------|---------------------|--------------------|
| Scudo | 1773 | Victor Amadeus. | 540 | 906 | 1 31 8 |
| do. (island) . . | 1773 | do. | 361 | 896 | 87 1 |
| Five francs . . . | 1800 | Republic. | 384 | 892 | 92 3 |
| Five lire | 1815-21 | Victor Emanuel. | 385 | 902 | 93 5 |
| do. | 1821-31 | Charles Felix. | 385 | 902 | 93 5 |
| do. | 1831-36 | Charles Albert. | 385 | 902 | 93 5 |
| Scudo | 1796 | Republic of Genoa. | 512 | 889 | 1 22 6 |
| Lira | 1794 | do. | 62 | 889 | 14 8 |
| Scudo | 1798 | Ligurian Republic. | 512 | 885 | 1 22 |

SAXONY.

Sachsen.

THIS country, one of the principal states of Germany, was an electorate until 1807, in which year it was advanced to the rank of a kingdom. The chain of monarchical succession of late years has been as follows: Frederick Augustus I., Elector of Saxony and King of Poland, reigned from 1694 to 1733. Frederick

Augustus II. to 1763. Frederick Christian succeeded in 1763, and died in the same year, after a reign of a few months. Coins were, however, struck with his effigy. Frederick Augustus III. became Elector at the age of thirteen years, maintained his place during the eventful period of French ascendancy, and terminated his career in 1827, after a reign of sixty-four years. Having espoused the cause of Napoleon, he was, in 1807, advanced to the royal rank in his own dominion, and made chief of the newly-created Duchy of Warsaw. Upon the Emperor's downfall in 1814, the Polish territory was restored to Russia, and the Saxon dominions curtailed by cessions to Prussia. Anthony, brother of the last monarch, reigned from 1827 to 1836. Frederick Augustus IV., nephew of Anthony, was made co-regent in 1830, succeeded to the throne in 1836, and is the reigning sovereign.

Saxony, being one of the northern states, keeps accounts in thalers and groschen. Until very recently, this thaler of account (called also the thaler current) was reckoned at $13\frac{1}{3}$ pieces to the Cologne mark fine, equivalent to 72.9 cents in our money, and was divided into 24 good groschen; but it is now at the Prussian or new convention-rate of 14 to the mark, which reduces the value to 69.4 cents, and is divided into 30 new or silver groschen, as in Prussia. The thaler of account is now represented in the coinage.

The gold coins consist of two classes: the *ducat*, and the *Augustd'or* of five thalers, with its double and half. The silver coins may also be divided into two classes: the first consisting of the *species-thaler* and its divisions, upon the basis of the convention of 1753, which was adopted in Saxony ten years after; the second consisting of the thaler and parts thereof, according to the convention of 1833. For the legal standards of all these, see *Germany*.

The annual coinage at Dresden is near half a million of thalers, equal to \$340,000 of our money; only one-thirtieth of this is in gold. The silver mines of Saxony produce a steady average of 65,500 marks annually, or more than \$600,000 of our money.*

The independent dukedoms of Saxony rely for the most part on the coins of Prussia for their currency, except in small denominations, or *scheide-münze*, which each prince coins for his own territory. However, there were convention-dollars struck in 1813 and 1815, by Charles Augustus, late Grand Duke of SAXE-WEIMAR;† and the same in 1829, by Ernest, reigning Duke of SAXE-COBURG.

* See Appendix. We are indebted to the attentions of DR. JOHN G. FLÜGEL, U. S. Consul at Leipsic, for specimen coins, with ample details concerning them.

† The coin of 1815 bears no head, nor name of the sovereign, but only the legend *Großherzogthum Sachsen*—"Grand-duchy of Saxony;" so that it requires some extraneous information to decide whence it emanated. Its standards are different from the usual rates, but they result in the same value.

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|---------------------|-----------|--------------------------------|-----------------|-------------------|--------------------|
| Double Augustd'or . | 1784-1800 | Fred. Augustus III. (Elector). | 204·5 | 896 | 7 89 1 |
| do. . . . | 1808-17 | do. (King.) | 204·5 | 896 | 7 89 1 |
| do. . . . | 1826 | do. | 205 | 898 | 7 92 8 |
| Double Antond'or . | 1830-36 | Anthony. | 205 | 900 | 7 94 6 |
| Ducat | 1830 | do. | 53·7 | 979 | 2 26 4 |
| Double Augustd'or . | 1837 | Frederick Augustus IV. | 205 | 900 | 7 94 6 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|---------------------------|-----------|------------------------------------|-----------------|-------------------|--------------------|
| Species-thaler . . | 1763 | Frederick Augustus II. | 428 | 842 | 97 1 |
| do. | 1763 | Frederick Christian. | 430 | 839 | 97 2 |
| do. | 1764-1806 | Frederick Augustus III. | 431 | 835 | 96 9 |
| do. | 1808-16 | do. | 432 | 835 | 97 1 |
| do. | 1815 | <i>Großherz. Sachsen</i> (Weimar). | 477 | 755 | 97 |
| do. | 1818-26 | Frederick Augustus III. | 430 | 834 | 96 6 |
| Half do. | 1813-26 | do. | 214 | 833 | 48 |
| Quarter do. . . . | 1800-02 | do. | 107 | 838 | 24 2 |
| Sixth do.* | 1803-10 | do. | 83 | 537 | 12 |
| Species-thaler . . | 1828-36 | Anthony. | 432 | 834 | 97 |
| Quarter do. . . . | 1830 | do.† | 126 | | |
| New thaler | 1839 | Frederick Augustus IV. | 344 | 750‡ | 69 5 |
| Piece of two new groschen | 1841 | do. | 46 | 310 | 3 8 |
| Piece of one new groschen | 1841 | do. | 32 | 230 | 2 |

* "VI. einen Thaler" means six to the *dollar current*, not to the specie or convention-dollar, of which it is only the eighth part.

† Not assayed. From the increase of weight it seems the standard fineness of the quarter (*Achtzig eine feine mark*), was reduced in the reign of Anthony.

‡ Fineness assumed.

SIERRA LEONE.

This colony was founded in 1787, on the western coast of Africa, by a company under charter of the British government. Silver coins were struck for it in 1791, and again in 1796; probably none of later date. The denominations were, the dollar of ten *macutas*, the half-dollar, the twenty cent, and the ten cent picce or one *macuta*. In weight, these correspond pretty nearly with the usual dollar standard, but the fineness is greatly below. A half-dollar, tried here, was found to weigh 204 grains, and to be 834 thousandths fine; value 46 cents. This coinage bears no relation to the series of *macuta* coins struck for the Portuguese colonies in West Africa. (See *Portugal*, note.)

SPAIN.

Espana.

THIRTY years ago, an exposition of Spanish moneys would have occupied the principal place in a work like the present. The Spanish dollar and doubloon were familiarly known at the ports of every continent, and every where formed the bulk of the material for minting. But this famous coinage has sunk into insignificance since the loss of the American colonies, whence the *pillar* dollars and most of the doubloons emanated. The Spanish-American coinage began to decline in the year 1810; about 1822 it entirely ceased, or rather underwent a transition from royal to republican. (See *Mexico*, *Peru*, &c.) The Peninsular coinage is of course continued, but is not often seen in this region.

The Spanish system of moneys is still important to an American reader. It is from the Spanish dollar that the unit of our national coinage is derived; and its divisions, though greatly depreciated by wear, continue to circulate largely in this country, and exercise a greater influence upon prices than our own small coins.*

To obtain a satisfactory view of Spanish moneys, the succession of monarchs

* The prices of small things, and even postages, are adjusted to the awkward sums of 12½ and 6½ cents, rather than the easy decimals 10 and 5. The mints are fast supplying the country with dimes and half-dimes, but the exigency continues so great, that in the southern and western States these are interchangeable with the *real* and *medio*, or eighth and sixteenth of the Spanish dollar.

should be kept in view. Upon the death of Charles II., the country was torn by the strife of various princes for the throne. The chief competitors were Philip V. (who was eventually successful) and Charles III. of Austria, afterwards the Emperor Charles VI. of Germany; and their contest is celebrated in history as the War of the Spanish Succession. From 1707 to 1712 there were cotemporary sets of pistareens and halves, of the respective claimants. After 1712, and until 1746, the name of Philip appears on the coin, with the exception of the single year of 1724, when a break occurred of a nature well suited to embarrass coin-collectors. In that year the monarch abdicated in favour of his son Louis, but before its expiration this prince died, and Philip resumed the reins of government. There are coins of that single date, bearing the name of *Ludovicus*. The successor of Philip was his son Ferdinand VI., who reigned until 1759. Charles III., hitherto VII. of Naples, and brother of Ferdinand, reigned until 1788, and was then succeeded by Charles IV., who abdicated in 1808 on behalf of his son Ferdinand VII. In this reign the coinage is again embarrassed by simultaneous suites with different devices, in consequence of the attempt to establish the Napoleon dynasty in Spain. The coins of Joseph bear date from 1809 to 1813. Ferdinand was fully re-established in 1814. His reign extended to 1833, after surviving a revolution at home (1820) and a series of reverses in America, by which the colonies were totally lost to his crown. Maria Isabella II. succeeded in 1833, at the age of three years, and with the aid of a regency is the reigning sovereign.

The Spanish money of account, in which exchanges are quoted, consists of an imaginary dollar, (about three-fourths of the real dollar,) divided into 3 *reals*, of 16 *quartos* or 34 *maravedis* each.

In the coinage, the integral money is the real of 34 maravedis. There are three sorts of reals; 1, the Mexican or Spanish-American, of which eight make a silver dollar; 2, the real of new plate (*de plata nueva*), of which ten are equal to a dollar; 3, the real *vellon*, of twenty to the dollar. The recent coinage bears this last rate.

In the gold coinage both of Spain and the colonies, there were the denominations of the *doblon* or doubloon, the half, the quarter or *pistole*, and the eighth or *escudo*. In Spain there was also a sixteenth, called *veinten*, coronilla, or gold dollar. The doubloon is valued at sixteen dollars. The following are the legal standards of this coin and its divisions.

Before 1772, 22 carats or 917 thousandths fine; $3\frac{1}{2}$ doubloons to a Castilian mark, or 413 troy grains to the dollar.*



From 1772 to 1785, $21\frac{1}{2}$ carats or 896 thousandths; same weight.

Since 1785, 21 carats or 875 thousandths; same weight.

* By referring to a note under *Mexico*, it will be seen that the Castilian mark is estimated at 3552 grains troy.

In the silver coinage of Spanish America, the denominations were, the *peso duro*, or hard dollar of eight reals, (commonly known as the pillar dollar,)* its half, quarter, eighth, sixteenth, and thirty-second parts. In the Peninsula, the coins were the dollar, formerly of ten reals, but now of twenty reals vellon, the half, the *peseta* or pistareen, which is one-fifth of the dollar, or four reals vellon, and the half and quarter pistareen. The legal fineness of all of these except the pistareen and its parts was, prior to 1772, 11 *dineros*, or 917 thousandths; since that date, 10 din. 20 grains, or 903 thousandths; the weight of the dollar to be the same as that of the doubloon. The standards of the pistareen and its parts are not so well ascertained, but it is believed that the full weight and fineness were as follows: Of the first class, 1707 to 1712, (issued by the pseudo Charles III.,) the pistareen should weigh 83·6 troy grains, at 11 din. or 917 thousandths fine. Of the second class, 1715 to 1771, commonly called the *cross pistareen*, weight 92·3 grains, fineness 10 din. or 833 thousandths. Of the third class, since 1772, usually called the *head pistareen*, 92·3 grains weight, and 9¼ din. or 813 thousandths fineness. These last are distinguishable from the preceding class, by having the head of the sovereign on the obverse.

The gold coins, both of Spain and Spanish America, have the same devices, and are only to be separated by the initials of the mints, found in the legend. The silver coins are more obviously distinguished; those of the Peninsula have on the reverse the national arms, inclosed in a shield, with the legend HISPANIARUM REX, or REY DE ESPAÑA; while those of the colonies have the addition of two columns, and in the legend the King is styled HISP. ET IND. REX.

The mints, with their respective marks, are (or have been) the following: in Spain, Madrid, designated by the letter M, crowned, and Seville, known by the letter S; in America, Mexico, marked M^o.; Potosi, ; Santiago, S^o.; New Guatemala, NG.; Lima, . There were other mints of less note, especially in Mexican provinces, after the breaking out of the Revolution. (See *Mexico*.)

In the colonies there have been several sorts of irregular coinage, especially those of the Mexican Revolution, which under the names of *hammered* and *cast* dollars, have been noticed under the head of *Mexico*. But there are some other kinds to be spoken of in this place.

1. The first is the clumsy, shapeless coinage, both of gold and silver, called in Mexico *máquina de papalote y cruz*;† and in this country by the briefer appellation of “cobs.” These were of the lawful standards, or nearly so, but scarcely deserved the name of coin, being rather lumps of bullion flattened and impressed by a hammer;

* So called from the pillars on the reverse of the coin, which represent the pillars of Hercules, or the Straits of Gibraltar. In Morocco (across the Straits) they are called *cannon* dollars, from a pardonable misapprehension of the device and its meaning.

† That is, “windmill and cross money;” the cross being of an unusual form, and not unlike the fan of a windmill.

the edge presenting every variety of form except that of a circle, and affording ample scope for the practice of clipping. Notwithstanding, they are generally found, even to this day, within a few grains of lawful weight. They are generally about a century old, but some are dated as late as 1770. They are distinguished by a large cross, of which the four arms are equal in length, and loaded at the ends; the date generally omits the *thousandth* place, so that 736 (for example) is to be read 1736. The letters PLVSVLTRA (*plus ultra*) are crowded in, without attention to order. These coins were formerly brought here in large quantities for recoinage, but have now become scarce.

2. Another rude coinage was issued at Caraccas, consisting of *pesetas* of two reals, or quarter dollars, of which, under the Spanish authority, we have observed the dates of 1781 to 1821; while from 1815 to 1821, like pieces were also issued by the patriots. They were of very reduced weight and fineness, as the tables will show; as to workmanship, they are but a single grade beyond the *cobs*.

3. During the troubles in the Peninsula, coins of one and five pesetas or pistareens were struck at Barcelona, bearing date 1809 to 1812. They bore the simple designation EN BARCELONA, and the value, without acknowledging any monarch. See a further notice in the table.

4. In 1821 pieces of ten reals or half a dollar appeared, bearing the title of Ferdinand VII., and the word RESELLADO ("recoined") conspicuously in the reverse. The coin is entirely out of the regular series, both as to its devices and fineness.

The amount of coinage at the Mint of Madrid for twenty years ending with 1841, was three and a half millions of dollars in gold, and two millions in silver; making an average of both kinds of \$275,000 annually. There is however a great variation in the yearly amounts of coinage.* (See Plate VIII.)

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|--------------------|---------|---------------|-----------|-----------------|-------------------|--------------------|
| Cob doubloon . . . | 1733-44 | Philip V.† | American. | 416 | 895 | 16 03 4 |
| Pistole . . . | 1745 | do. | Spanish. | 103 | 909 | 4 03 2 |
| Doubloon . . . | 1751 | Ferdinand VI. | American. | 416 | 908 | 16 26 5 |
| do. . . . | 1772-84 | Charles III.‡ | do. | 416 | 893 | 16 00 |

* Statement from the mint, procured by HON. A. VAIL, U. S. Chargé d'Affaires at Madrid. This does not include Seville. See Appendix.

† Some of these weigh only 408 grains, and the fineness varies from 893 to 898.

‡ Fineness varies from 895 to 883; the oldest pieces being the best.

SPAIN.

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GOLD COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-----------------|-----------|----------------|------------|-----------------|-------------------|--------------------|
| Half-doubloon . | 1780-82 | Charles III. | Spanish. | 206 | 896 | 7 95 |
| Pistole . . . | 1774-82 | do. | American. | 103 | 895 | 3 97 |
| Doubloon . . . | 1786-88 | do. | Spanish. | 416 | 870 | 15 58 7 |
| Escudo . . . | 1786-88 | do. | American. | 52 | 874 | 1 95 7 |
| Doubloon . . . | 1789-1808 | Charles IV. | American.* | 416.5 | 868 | 15 57 |
| Half do. . . . | 1789-1808 | do. | do. | 208 | 870 | 7 79 3 |
| Escudo | 1789-1808 | do. | Various. | 52 | 868 | 1 94 4 |
| Doubloon . . . | 1811-21 | Ferdinand VII. | American.† | 416.5 | 868 | 15 57 |
| Half do. . . . | 1810-24 | do. | Spanish. | 208 | 865 | 7 74 8 |
| Pistole | 1813-22 | do. | do. | 104 | 872 | 3 90 6 |
| Escudo | 1809-20 | do. | American. | 52 | 851 | 1 90 6 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|------------------|---------|--------------------------------|-----------|-----------------|-------------------|--------------------|
| Cob dollar . . . | 1736-70 | Philip V.; Charles III. Amer.‡ | | 410 | 915 | 1 01 |
| Dollar | 1731-32 | Philip V. | Spanish. | 410 | 910 | 1 00 6 |
| Pistareen . . . | 1707-12 | Charles, Pretender. | | 70 | 900 | 17 |
| do. | 1715-37 | Philip V. | | 81 | 833 | 18 2 |
| do. | 1724 | Louis. | | 75 | 833 | 16 8 |
| Globe dollar . . | 1736-46 | Philip V. | American. | 411 | 910 | 1 00 8 |
| do. | 1746-59 | Ferdinand VI. | do. | 411 | 910 | 1 00 8 |
| Quarter do. . . | 1746-59 | do. | do. | 100 | 910 | 24 5 |
| Globe dollar . . | 1759-71 | Charles III. | do. | 411 | 910 | 1 00 8 |
| Pistareen . . . | 1759-71 | do. | | 85 | 826 | 18 9 |

* Weight varies (in pieces little worn) from 414 to 418 grains.

† Weight varies from 412 to 419 grains. One grain makes a difference of 3½ cents.

‡ Finess varies from 913 to 922 grains.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------------|-----------|--------------------------------|-----------------|---------------------|--------------------|
| Dollar . . . | 1772-88 | Charles III. Spanish. | 412 | 900 | 99 8 |
| Half do. . . | 1772-88 | do. do. | 205 | 900 | 49 7 |
| Pillar dollar . . | 1772-1808 | Charles III. and IV. Amer.* | 413 | 898 | 99 8 |
| Half do. . . | 1772-1808 | do. do. | 204 | 898 | 49 3 |
| Pistareen . . | 1772-1808 | do.† | 85 | 813 | 18 6 |
| Half do. . . | 1772-1808 | do. | 41 | 813 | 9 |
| Pillar dollar . . | 1808-25 | Ferdinand VII. American.‡ | 414 | 898 | 1 00 1 |
| Dollar . . . | 1808-21 | do. Spanish. | 414 | 900 | 1 00 4 |
| do. . . . | 1809-13 | Joseph Napoleon. do. | 415 | 900 | 1 00 6 |
| Pistareen . . | 1808-33 | Ferdinand VII. | 87 | 813 | 19 1 |
| do. . . . | 1835-37 | Isabella II. | 90·5 | 810 | 19 7 |
| Quarter dollar . | 1772-1821 | Various; from our circulation. | 97 | 898 | 23 5 |
| Eighth, or real . | 1772-1821 | do. do. | 46 | 898 | 11 1 |
| Sixteenth, or medio . | 1772-1821 | do. do. | 21 | 898 | 5 1 |
| Quarter real . . | 1796-1816 | do. American. | 12 | 898 | 2 9 |
| Two reals . . . | 1781-1821 | do. Caraccas. | 74 | 690 | 13 8 |
| Five pesetas . . | 1809-11 | Barcelona coinage. | 404 | 896 | 97 5 |
| Ten reals . . . | 1821 | <i>Resellado.</i> | 208 | 920 | 51 5 |

* Fineness from 897 to 903. Parcels may average 900.

† Pistareens were formerly abundant in our circulation, passing for 20 cents. In consequence of a report upon them, made by the Director of the Mint in 1827, they fell to 17 cents, but have now quite disappeared. The head pistareens were apt to be mistaken for quarters of a dollar.

‡ After the Peninsular Revolution of 1821, pillar dollars were struck for a short time at Madrid. They are easily distinguishable from the true pillar dollar. In fineness, Madrid pieces are occasionally found as high as 905.

S W E D E N.

Sverige.

THE currency of Sweden consists almost wholly of paper money, although there is a fair proportion of specie coined at the mint.

The unit of metallic money is the *species-daler* of 48 *schillings*. Previous to 1830, it was coined at the rate of $7\frac{1}{2}$ pieces to the mark, (451.7 troy grains to the daler,) and 14 loths 1 grain (878 thousandths) fine. Its divisions were, the two-third and one-third, or *plott*, at the same fineness; and pieces of one-sixth, one-twelfth, and one-twenty-fourth, of lower quality. By the law of 1830, the daler is now coined at $\frac{8}{100}$ ths of the pound, or 525 grains troy, and 750 thousandths fine, so that its value is not altered. Its present divisions are the one-half, one-quarter, one-eighth, and one-sixteenth, at the same fineness.

The only gold coin is the ducat, of the usual weight, and 976 thousandths fine; 125 pieces being coined from a pound of fine gold.

The amount of annual coinage is variable. In 1833 it was 850,000 specie dalers in silver, and 20,000 ducats in gold; in the preceding year it was only half this sum.*

The silver mines at Sahla and Stora yield annually about 30,000 specie dalers.

There are two sorts of paper money, *Banco* and *Riksgald*; the former issued by the National Bank, the latter by the Riksgald or Government Bank. The Banco is reckoned to be fifty per cent. better than the other.† Since 1829, the established rate has been $2\frac{2}{3}$ riksdalers banco to one specie daler,‡ which would make the former equal to 40 cents of our money; but it is sometimes not more than 35 cents, owing to fluctuations in exchange. The riksgald daler may therefore be estimated at 25 cents, or one-fourth of our dollar.

* Letter (with specimen coins) from C. F. ARFWEDSON, Esq., U. S. Consul at Stockholm.

† Baird's Northern Europe.

‡ Becher, art. *Schweden*.

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|------------------------------|-----------|------------------------|-----------------|---------------------|--------------------|
| Ducat . . . | 1777 | Gustavus III. | 53 | 977 | 2 23 |
| do. . . . | 1799-1800 | Gustavus IV. Adolphus. | 53 | 977 | 2 23 |
| do. . . . | 1838 | Charles John XIV. | 54 | 975 | 2 26 7 |
| Specie daler . . | 1771-91 | Gustavus III. | 448 | 880 | 1 06 2 |
| One-third do. (plott) | 1784 | do. | 147 | 875 | 34 6 |
| Specie daler . . | 1795-1801 | Gustavus IV. Adolphus. | 450 | 880 | 1 06 7 |
| One-sixth do. . . | 1803-07 | do. | 95 | 686 | 17 6 |
| Specie daler . . | 1830-38 | Charles John XIV. | 525 | 751 | 1 06 2 |
| Half do. . . . | 1831-32 | do. | 261 | 751 | 52 8 |
| One-quarter do. (12 schil.) | 1830-32 | do. | 131 | 750 | 26 5 |
| One-eighth do. (6 schil.) | 1832 | do. | 63 | 750 | 12 7 |
| One-sixteenth do. (3 schil.) | 1835-36 | do. | 31 | 750 | 6 3 |

S W I T Z E R L A N D.

Schweiz.

UNTIL near the close of the last century, this ancient republic consisted of a confederacy (*Eidsgenossenschaft*) of states or cantons, nineteen in number. In 1798, through the influence or power of the French Republic, the cantons were consolidated into one government, called the Helvetian Republic (*Republik Helvetische*); but after five years' duration, this constitution was dissolved, and the former system re-established. Subsequently, three new cantons were added to the confederacy; so that the present number consists of twenty-two.*

* We annex the names of these in English and Swiss, and in some cases Latin also, as they appear on the coins; and aid which the collector of coins will appreciate.

1. BERNE—*Bern*, Sw.—*Respublica Bernensis*, Lat. This is one of the central cantons, and is by far the most considerable, both as to size and population. 2. ZURICH—*Zurich*, Sw.—*Resp. Tigurina*, or *Turicensis*, Lat. 3. VAUD—*Waadt*, Sw. (The legend on the coins is in French.) 4. LUCERNE—*Luzern*, Sw.—*Resp. Lucernensis*, Lat. 5. ST. GALL—*St. Gallen*, Sw. 6. TICINO—*Tessin*, Sw. (Legend in Italian.) 7. BASLE—*Basel*, Sw.—

Each of the cantons enjoyed, and used, the right of coinage, prior to the union of 1793; from that date until 1803, coins were issued only in the name of the Helvetic Republic; but since 1803, the prerogative has reverted to the various cantons. Considering that the population of the entire confederacy does not exceed two millions, it could not be expected that the present work should detail the monied system of each district. This is the less called for, as, for more than ten years past, the cantons have stamped only the lowest denominations, (*batzen* and *half-batzen*;) and as to gold, or large silver pieces, none have been issued for upwards of twenty-five years.* Switzerland depends for its larger metallic currency upon France and Germany, the five franc piece and the crown-dollar being most usual. As to small pieces (*scheidemünze*), the cantons are overrun with their mutual issues, as well as by an influx of billon money from the adjoining countries.†

Previous to the revolution of 1798, the gold coins of the Swiss cantons were the *ducat* and *pistole*, with occasional issues of *doubles* of each. The ducats were very various as to value, though approaching to the imperial standard. (See *Germany*.) The pistole was coined upon the basis of the louis d'or of France, ordained in 1785. (See *France*.)

The principal silver coin was the *ecu* or crown, of 4 Swiss francs (*franken*), also divided into 40 *batzen*, or 400 *rappen*. The smaller pieces were the half-crown, the franc of 10 *batzen*, and the pieces of five and one *batz*. The *ecu* was of different standards, but that of Berne, which was the most known, was $14\frac{1}{2}$ loths, or 905 thousandths fine, and contained 26·5 grammes fine gold. Its full value in our money was 110 cents, making the Swiss franc 27·5 cents, or about $1\frac{1}{2}$ francs of France.

When the Helvetic Republic was established, the coinage of Berne was adopted as the basis for the new moneys, except that the fineness of the silver was reduced to the French standard of nine-tenths, and the weight increased proportionally. The gold pistole was already at that alloy in actual coinage. Upon the dissolution of this government in 1803, and the return to a confederacy, a law was enacted providing for a uniform system of moneys. The Swiss franc was declared to be equal to $8\frac{2}{3}$

Resp. Basileensis, Lat. 8. FRIEBURG—*Freyburg*, Sw. 9. SOLEURE—*Solothurn*, Sw.—*Resp. Solodorensis*, Lat. 10. URI—same in Sw.—*Resp. Urania*, Lat. 11. SCHWEITZ—*Schweyz*, Sw.—*Resp. Suitensis*, Lat. 12. GRISONS—*Graubünden*, Sw. 13. AARGAU. 14. UNTERWALDEN. 15. GLARUS. 16. THURGAU. 17. SCHAFFHAUSEN. 18. APPENZELL. 19. ZUG. (These seven are named alike in Swiss and in English.) 20. GENEVA—*Genf*, Sw.—Geneve, Fr. This was formerly a separate republic, but by the treaty of Vienna, in 1815, became one of the Swiss cantons; as also the two following: 21. VALAIS—*Wallis*, Sw. 22. NEUCHÂTEL—*Neuenburg*, Sw. This canton is under the dominion of the King of Prussia, without constituting a part of that nation.

* Letter of J. G. SCHWARZ, Esq., U. S. Consul at Vienna, June 1841.

† Two tracts have recently appeared at Zurich, from the pen of M. Pestalozzi, bearing the significant titles, *Ueber die Landplage der fremden Scheidemünze*, &c.—“On that scourge of the country, foreign small coins,”—and *Die Münzwirren der Westlichen Schweiz*—“The confusion of currency in West Switzerland.” 1838–39. See also his *Beyträge zur Schw. Münz.*, &c. Zurich, 1833.

French grains of fine gold, or $127\frac{1}{2}$ grains of fine silver. In the coinage, the pieces of one, two, and four francs were to be nine-tenths fine, and 32·58 francs to weigh a mark. For lower denominations, there were the five-batzen, two-thirds (667 thousandths) fine, and 54 pieces to the mark; the batzen, one-sixth (167 thousandths) fine, and 90 to the mark; besides smaller pieces of still baser alloy. In 1818 another system was established; the franc was reduced to $3\frac{1}{16}$ French grains in fine gold, or 125·25 grains in fine silver.* A tariff of foreign coins was added, by which the French five franc piece was made current at 35·75 batzen; the twenty franc at 135 batzen; German crowns at 33·5 batzen.

As it respects the monetary system, it would hence appear that there is sufficient uniformity and simplicity; in the manufacture of the coin there is greater latitude. But it is in the moneys of account that the greatest diversity consists; and this is so great as to deter any one but a Swiss from studying the subject. The Swiss florins and livres are as multifarious as the imaginary pounds of our own States before their independence. It is sufficient to state that the German cantons (which compose the great body of the union) reckon, 1, in the Swiss franc or livre, divided into 10 batzen, or 100 rappen; this livre being worth at present 1·47 French francs, or 27·34 cents of the United States—2, in gulden, or florins, divided into 40 schillings or 60 kreutzers—otherwise into 15 batzen of 4 kreutzers. These florins are very various, being from 20 to 27 picces to the Cologne mark fine.† At Berne, the principal canton, the florin is at 23·375 to the fine mark, or 41·4 cents per florin in our money.‡ At Zurich, the florin corresponds to 2·35 French francs, or 43·7 cents of the United States.§ In the French cantons, (Geneva, Vaud, Neufchatel,) accounts are kept in *livres*, divided into 20 *sols* or *sous*, and subdivided into 240 *deniers*. But the uniformity proceeds no further than the nomenclature. Thus in Geneva, (by law of 1826,) the livre is at the rate of $32\frac{1}{4}$ to the Cologne mark of fine silver; and there is also a mode of accounting by florins of 12 sous, or 144 deniers. One livre is equal to $3\frac{1}{2}$ florins. In Vaud, the livre is at 35 to the fine mark. In Neufchatel, the livre is at $35\frac{1}{2}$; but there is also a *livre faible*, of which $2\frac{1}{2}$ are equal to the former. In the Italian canton, Ticino, 79½ lire are equal to a mark of fine silver.||

* Becher, i. 218. In our terms, this makes 6·64 troy grains of fine gold, equal to 28·58 cents; or 102·67 grains fine silver, equal to 27·64 cents.

† Andreits.

‡ Becher.

§ Note from Zurich, 1841.

|| A Cologne mark of fine silver is worth \$9 72 12 in United States' money.

GOLD COINS.

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|------------------|----------|---------------------|-----------------|---------------------|--------------------|
| Double Pistole . | 1793 | Berne. | 234 | 900 | 9 07 |
| Pistole . . . | 1796 | do. | 116 | 901 | 4 50 1 |
| Ducat . . . | 1794 | do. | 52.5 | 974 | 2 20 2 |
| do. . . . | No date. | Basle. | 53 | 943 | 2 15 2 |
| Pistole . . . | 1795 | do. | 118 | 891 | 4 52 8 |
| do. . . . | 1798 | Soleure. | 116 | 898 | 4 48 6 |
| do. . . . | 1800 | Helvetian Republic. | 116 | 897 | 4 48 1 |

SILVER COINS.

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------------------|---------|---------------------|-----------------|---------------------|--------------------|
| Ecu | 1790-94 | Zurich. | 390 | 844 | 88 7 |
| Eight batzen . . | 1810 | do. | 113 | | |
| Ecu, forty batzen . | 1795-98 | Berne. | 452 | 903 | 1 10 |
| Franken . . . | 1797 | do. | 122 | 833 | 27 4 |
| do. . . . | 1811 | do. | 114 | | |
| Five batzen . . | 1826 | do. | 67 | 760 | 13 7 |
| Two and a half do. | 1826 | do. | 31.5 | 766 | 6 5 |
| Batzen | 1826 | do. | 31 | 254 | 2 1 |
| Four franken . . | 1814 | Lucerne. | 453 | | |
| Ten batzen . . . | 1812 | do. | 110 | 904 | 26 8 |
| Four franken . . | 1801 | Helvetian Republic. | 452 | 900 | 1 09 6 |
| Genevoise, or ecu of 3 liv. | 1796 | Geneva. | 464 | 868 | 1 08 5 |
| Twenty-five cent. . | 1839 | do. | 62 | 252 | 4 2 |
| Ten do. . . . | 1839 | do. | 49 | 126 | 1 7 |
| Ten batzen . . . | 1823 | Vaud. | 112 | 900 | 27 1 |
| Five do. . . . | 1813 | do. | 63 | 666 | 11 3 |
| Batzen | 1831 | do. | 39 | 164 | 1 7 |

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|-----------------|----------|-------------|-----------------|---------------------|--------------------|
| Batzen . . . | 1828 | Freyburg. | 40 | 167 | 1 8 |
| Thaler . . . | 1763 | Basle. | 356 | 833 | 80 |
| Crown . . . | 1795 | do. | 412 | 840 | 93 2 |
| Small piece . . | No date. | do.* | 7·2 | 53 | 1 |

T R I P O L I.

Trabolus.

THIS country, one of the Barbary Powers on the southern coast of the Mediterranean, is nominally a regency of the Ottoman Empire. It has its distinctive coinage, in no respect assimilated to that of the Sultan, except that it bears his name and titles in the impression, to the exclusion of those of the reigning Bashaw. The coins are unimportant in a commercial view, and of still less value as specimens of the art of minting; but being extremely scarce on this side of the ocean, they are proportionably curious, and the few details we have to offer in relation to them may gratify amateur collectors.

The mint law, or rather the instruction of the Bashaw to his coiners, as to the alloy and composition of the moneys, is, as in most Turkish countries, a state secret. The issue of coin is as often an expedient to raise money for the government, as to provide a currency for the people. A considerable parcel of coin having been struck at the mint, public criers proclaim the value at which it must be received, particularly as compared with some foreign coin, such as the Spanish or Austrian dollar. The people are compelled under severe penalties to accept the coin at its arbitrary valuation, until the issue in the possession of the Bashaw is expended, when the money is suffered to fall to its intrinsic value.

* This coin bears only the letters *Mon. Basil.*, (*Moneta Basileensis.*) It is the lowest alloy of silver, of any coin in the world.

A notable instance of this policy was that of a pretended gold coin, issued by the late Youssuf Bashaw. In 1827, pieces called *adlea*, having a golden exterior, and weighing about forty grains troy, were forced upon the people as the equivalent of a dollar. In a few days they declined to the one-thirtieth of that amount, which was considered to be their real value. Having had an opportunity of testing their proportions here, we find the content to be 154 thousandths in silver, 9 in gold, and the remainder (837 thousandths) base metal. The gold was merely a thick gilding. After deducting expenses of parting, and obtaining therefrom merchantable gold and silver, one ounce (troy) of such coins would yield 34½ cents; and a single piece would be worth nearly three cents. These oppressive measures of Youssuf were the principal cause of the revolution which led to his overthrow and abdication in 1832.

The gold coin of Tripoli has for a long time disappeared, even from its own capital city. The latest date is A. H. 1233 (A. D. 1820), though the dies with this date were said to have been continued in use until 1829, with a view to impose an inferior coin into circulation.

Of the silver or *billon* coin, there are two series of modern date. The first is that of Youssuf Bashaw, of the twenty-fifth year of Sultan Mahmoud II. (1832), consisting of the *ghersh* or piastre, and its divisions. The weight of the *ghersh* was 2½ *meticals*;* the alleged fineness was one-third, but our assays prove an habitual endeavour at one-fourth. The second series is that of Nedgib, his successor, consisting of the *utehlik* of 1½ piastres, or 120 paras, and its divisions. The *utehlik* weighs 3½ *meticals*, and its fineness is about the same as the *ghersh*. It therefore appears that the value of the piastre has been increased; Youssuf's was worth ten cents in our money, that of Nedgib is 12½ cents; nearly the same as in Tunis. Hence the Spanish dollar finds its equivalent at 800 paras, or aspers. This rate was, three years ago, fixed by authority; but the edict became obsolete in a few weeks, and the coins were left to find their level in trade.

In the Addenda to Kelly's Cambist, there is an assay of three silver coins of Tripoli dated in 1808, which were of considerably higher value, the piastre being then equal to eighteen cents. These specimens are given in the annexed table.

Accounts are kept in Tripoli in piastres or *ghersh*, of 100 paras. (See Plate XV.)

* The U. S. Consul at Tripoli, D. SMITH M'CAULEY, Esq., has taken pains to compare the *onzia*, a weight of Tripoli, with our troy weight; the result, together with specimens of coinage, were obligingly sent to this Mint, in October 1839. He finds the *onzia* to be equal to 471 grains troy. The *metical*, or money weight, is equal to 6¾ parts of the *onzia*, or ounce, and is divided into 24 *harooba*; making the metical equivalent to 70.65 grains, and the *haroob* 2.94 grains. Kelly's Cambist gives 72 grains as the weight of the metical, and states that there is a smaller weight of the same name, equal to 63 grains, used for bartering in gold dust. The metical appears to be the same as the Persian *miscal*. (See *Persia*.)

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|----------------------|-------------|------------------------|-----------------|-------------------|--------------------|
| Gherish, of 100 par. | 1223 (1808) | Mahmoud II. | 188 | 354 | 17 9 |
| Half do. . . . | 1223 | do. | 98 | 306 | 8 1 |
| Quarter do. . . | 1223 | do.* | 47 | 308 | 3 9 |
| Gherish | 1248 (1832) | do. (Youssuf, Bashaw.) | 153 | 244 | 10 |
| Half do. . . . | 1248 | do. do. | 78 | 241 | 5 1 |
| Quarter do. . . | 1248 | do. do. | 39 | 246 | 2 6 |
| Eighth do. . . . | 1248 | do. do. | 20 | 249 | 1 3 |
| Utchlik, of 120 p. . | 1251 (1835) | do. (Nedgib, Bashaw.) | 227 | 245 | 15 |
| Altmich, of 60 . . | 1251 | do. do. | 116 | 262 | 8 2 |
| Boutleteen, of 30 . | 1251 | do. do. | 57 | 241 | 3 7 |
| Bouhamstah, of 15 | 1251 | do. do. | 28.5 | 245 | 1 9 |
| Bousebbatash, of 7½ | 1251 | do. do. | 13.5 | 250 | 9 |

TUNIS.

THIS country is nominally a dependency of Turkey, and allegiance is acknowledged, as in Egypt and Tripoli, by the inscription of the Sultan's name and titles upon the coin, without mention of the reigning Bey. The system of money is entirely distinct from that of the mother country.

While this regency is reported to have made considerable advances in civilization, it must be owned that the coinage is an exception; its fluctuations of value, and baseness of composition, show that it belongs to Barbary. The coins are scarcely seen in our part of the world, and are but slightly noticed in standard treatises.†

The old piastre of Tunis (say of Selim III.) was of the intrinsic value of 25 cents,

* These three pieces from Kelly were assayed in 1822, and probably were coined about that time. The date of A. H. 1223 only indicates the Sultan's accession; the year of his reign is found on another part of the coin, and is to be added. See page 17, note.

† We are indebted to S. D. HEAR, Esq., late U. S. Consul at Tunis, for specimen coins, with accompanying details.

or one-fourth of a Spanish dollar. In 1823 the Bey ordered a new coinage, of which the piastre was to pass for one-fifth of a dollar; but its real value was not more than 14 cents. The coins have since declined somewhat, so that at present the piastre is scarcely worth 13 cents. In fact, the coinage is regulated by no declared standard, but varies according to the secret instructions of the government.

The arbitrary value set upon the piastre of 1823 gave rise, as might have been expected, to a profitable speculation for private coiners beyond the Mediterranean, as well as for the Bey himself. Quantities of counterfeit Tunisian piastres—if it be right to stigmatize them as such, since they were fully equal to the Bey's in value—were coined in Europe, and introduced into Tunis; where, being exchanged at the rate of five to the dollar, they had the effect of driving good foreign coins out of circulation, and obliged the government to annul its decree. The piastres then fell to their true valuation, and so continue, except that the course of trade sometimes attaches to them a variable rate in commerce. For example, a failure in the crops of corn, oil, &c. will reduce the piastre to 70 or 80 French centimes, or 13 to 15 cents of the United States; but when the harvests are abundant, the value (against foreign money) rises to 17 cents.

Gold does not seem to have been coined for half a century past.

Accounts are kept in piastres, divided into 52 *aspers* or *burba*, which are subdivided into 12 *burbine*. (See Plate XV.)

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALU. D. C. M. |
|-------------------|-------------|----------------------|-----------------|-------------------|-------------------|
| Half-sequin . . . | 1187 (1773) | Abdul Hamid, Sultan. | 19 | 855 | 72 4 |
| Piastre . . . | 1202 (1787) | do. | 238 | 408 | 26 1 |
| Double piastre . | 1245 (1829) | Mahmoud II.* | 358 | 270 | 26 |
| Piastre . . . | (1838-39) | do. | 176 | 263 | 12 8 |
| Half do. . . | (1828-29) | do. | 90 | 273 | 6 5 |
| Quarter do. . . | (1834-35) | do. | 45 | 270 | 3 2 |
| Eighth do. . . | (1824-26) | do. | 21 | 296 | 1 7 |
| Sixteenth do. . . | (1837-39) | do. | 11 | 270 | 8 |

* There is a great want of adjustment in the weight of these coins. Two double piastres, of A. H. 1245, differ 9 grains from each other. The fineness of the coins, as shown by the table, varies from 263 to 296 thousandths. Probably three parts fine in ten, is the standard given by the Bey to his coiner.

T U R K E Y.

THERE is no monetary system so uncertain and fluctuating as that of Turkey. This may be seen by tracing the value of the *ghersh** or piastre (the unit of Turkish money) for less than one century past. From the best data at command, it appears that in 1764 (reign of Mustapha III.) the piastre was worth sixty cents of our money; in the next reign (Abdul Hamid), from 1774 to 1789, it was at forty cents; in the reign of Selim III., which extended to 1807, it was farther reduced to twenty-six cents; during the government of Mahmoud II. it fell, in 1818, to eighteen, in 1823 to twelve, the next year to eight, in 1827 to six, and in 1832 to three cents intrinsically, although in commerce it was at 18 to the Spanish dollar, or a fraction over five cents to the piastre. In the present reign (Abdul Medjid), its intrinsic value is 3·8 cents in the silver coin, and 4·4 in the gold, or 26 to 23 per dollar; commercially it is rated at 23 to the dollar, more or less.

In consequence of this rapid depreciation of the currency, the coinage presents an intricate study, and one, to any except a Turk,† scarcely worth the pains. There is great irregularity in the weight and fineness; and the latter is, in the silver coin especially, exceedingly low; so that it fairly falls within the class of *billon*.

The piastre, *ghersh* or *kirk-paralik*, is in actual money divided into 40 *paras*, of 3 *akcheh* or *aspers* each; but in moneys of account it is variously divided into 80 or 100 *aspers*.

GOLD COINS. In 1764, the sequin *fundouk* was established as an equivalent to the Venetian sequin, then much used in Turkey, and in countries farther east. It soon became debased, however, both in weight and fineness, and was gradually superseded by the sequin *zermahboub*, at first equal to three-fourths of the *fundouk*. Its parts were the half, or *nisf*, and quarter, or *rubieh*. Under the reign of Mahmoud II. the gold coins were the pieces of 40, 20, and 10 piastres, of 21 carats or 875 thousandths fine; the largest weighing 56 grains troy. Also the *onikilik*, of 12 piastres, and its half, at 20 carats fine, or 833 thousandths.‡ Since the accession of Abdul Medjid (July 1839), the gold coins are the *yirmilik* of 20 piastres, the *onlik* of 10, and the *altunli beslik* of 5, at the fineness of 20 carats or 833 thousandths; the largest weighing 24½ grains troy.

* Otherwise spelt *grouch*. Marsden derives it from the German *groschen*.

† We should also except the fraternity of collectors, who seldom make any account of trouble or difficulty in their researches.

‡ Becher, art. *Türk. Reich*.

SILVER COINS. Under Mahmoud II. these were the *beslik* of 5 piastres, the half or *yuzparalik*, the *kirkparalik* or piastre, the *yirmiparalik* or half-piastre, and the *onparalik* or quarter-piastre of 10 paras. These contained about 22 per cent. of silver. There was also the *altilik* of 6 piastres, towards the close of his reign, about 44 per cent. fine.

Under the present Sultan, the coins are the *altilik* of 6 piastres, the *utchlik* of 3, the *altmichlik* of $1\frac{1}{2}$, the *yirmiparalik* of a half-piastre, and the *onparalik*, or quarter, besides the single *para*.* The pieces of $1\frac{1}{2}$ p. and upward, are 43 per cent. of silver; the others are much lower.

GOLD COINS.

| DENOMINATION. | DATE.† | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|--------------------------|---------|---------------|-----------------|---------------------|--------------------|
| Sequin fundouk . | 1789 | Selim III. | 52·5 | 800 | 1 80 9 |
| do. zermahboub . | 1789 | do. | 36 | 800 | 1 24 |
| Onikilik, of 12 p. . | 1822-24 | Mahmoud II. | 25 | 833 | 89 7 |
| Piece of 20 piastres | 1827 | do. | 27·5 | 875 | 1 03 7 |
| do. of 10 p. . . | 1827 | do. | 13·5 | 875 | 50 9 |
| Yirmilik, of 20 p. . | 1840 | Abdul Medjid. | 24·5 | 832 | 87 7 |
| Onlik, of 10 p. . . | 1840 | do. | 12·5 | 832 | 44 8 |
| Altunli beshlik, or 5 p. | 1840 | do. | 6·5 | 832 | 23 3 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|----------------------------------|-----------|--------------|-----------------|---------------------|--------------------|
| Ghersh, or piastre . | 1773 | Abdul Hamid. | 294 | 500 | 39 6 |
| do. . . . | 1783 | do. | 284 | 550 | 42 1 |
| Altmichlik, or $1\frac{1}{2}$ p. | 1784 | do. | 410 | 550 | 60 7 |
| Yuzparalik, or $2\frac{1}{2}$ p. | 1793-1802 | Selim III.‡ | 500 | 470 | 63 3 |
| Ghersh | 1794-1801 | do. | 200 | 486 | 26 2 |

* We are indebted to the attention of JOHN P. BROWN, Esq., late dragoman to the U. S. Embassy at Constantinople, for specimens of coinage of the present and past reigns, with additional information.

† The Mahomedan date is here omitted, and the Christian substituted.

‡ These vary in weight from 486 to 508 grains.

SILVER COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|------------------------------------|---------|---------------|-----------------|---------------------|--------------------|
| Para . . . | 1794 | Selim III.* | 5 | 500 | 7 |
| Gherish . . . | 1823 | Mahmoud II. | 94 | 470 | 11 9 |
| Yirmilik, or $\frac{1}{2}$ p. . | 1827 | do. | 23 | 470 | 2 9 |
| Beshlik, or 5 p. . | 1830-32 | do. | 250 | 215 | 14 5 |
| Yuzlik, or $2\frac{1}{2}$ p. . | 1831-32 | do. | 120 | 215 | 7 |
| Gherish . . . | 1831-32 | do. | 44 | 220 | 2 6 |
| Yirmilik . . . | 1835-38 | do. | 21 | 150 | 8 |
| Altılık, or 6 p. . | 1835 | do. | 200 | 442 | 23 8 |
| do. . . | 1840 | Abdul Medjid. | 197 | 442 | 23 6 |
| Utchlik, or 3 p. . | 1840 | do. | 94 | 432 | 10 9 |
| Altmichlik, or $1\frac{1}{2}$ p. . | 1840 | do. | 48 | 425 | 5 5 |
| Yirmilik, or $\frac{1}{2}$ p. . | 1840 | do. | 23.5 | 165 | 1 |
| Onlik, or 10 paras . | 1840 | do. | 12 | | |
| Para . . . | 1840 | do.† | 2 | 77 | |

TUSCANY.

Toscana.

THE monarchical succession of this country, for the past century, is closely linked with that of the German empire.

The family of Medicis, which bore the rule for several centuries, became extinct in 1737, by the death of John Gaston. The grand-dukedom was thereupon claimed by the Emperor Charles VI.; by whom it was conferred upon his son-in-law, Francis of Lorraine. In 1740, upon the decease of Charles, Francis became nominally, and five years after, actually, Emperor of Germany; yet retaining the sovereignty of Tuscany, and adding his new titles to the legend upon the Tuscan coins. The first

* These vary from $2\frac{1}{2}$ to 7 grains.

† Value, one-thirtieth of a cent.

coinage which will be noticed here, will date from the Lorraine dynasty; coins of an earlier period being now "so rare that they cannot be found even for the gratification of the curious."*

Upon the death of Francis (who was I. of Germany, but III. of Tuscany), in 1765, the grand-duchy devolved upon his second son, Leopold. In 1790 this prince was called to the imperial throne, but continued to reign over Tuscany also, until his decease in 1792. His second son, Ferdinand III., succeeded to the grand-duchy in the same year. The great revolution, at first French, but eventually European, which had its commencement about the same time, was destined to exercise a powerful, though not enduring influence upon the fortunes of this prince, and of Tuscany. In 1801, by virtue of the treaty of Luneville, the Grand Duke was deposed, the state erected into a kingdom under the name of Etruria, and Louis, son of the Duke of Parma, placed on the throne. This prince dying in 1803, his infant son, Charles Louis, succeeded, under the regency of the Queen-mother, Maria Louisa. (The heads of both were impressed on the coinage, and their manner of arrangement served to distinguish between the old class of coins and a new series then introduced; on the former, they were placed *vis-à-vis*, or facing each other; on the latter, side by side, the infant being in front.)

In 1808 the Kingdom of Etruria was dissolved, and the territory annexed to the French empire, though subject to the nominal rule of Eliza, the sister of Napoleon. In this condition it continued until the overthrow of that personage in 1814, when the ancient title of Tuscany was restored, with the former rank of a grand-duchy, and Ferdinand III. recovered the throne of which he had been deprived for thirteen years. His reign extended to 1824, when he was succeeded by Leopold II., his son, present Grand Duke.

During the period thus briefly reviewed, there have been three systems of silver coinage, and but one of gold.

GOLD COINS. These are the *ruspone*, and the *zecchino gigliato*, or sequin. They are both meant to be of fine gold, without allowance; and the latter is the one-third of the former, in weight and value. The *ruspone* should weigh 8 *den.* 21 *grains*, or at the rate of 32½ pieces to the *libbra*, or pound;† making in our terms 161·5 troy grains for the *ruspone*, and 53·3 grains (which is the usual ducat or sequin weight) for the *zecchino*.

The nominal value of the *ruspone* is 40 Tuscan *lire* or *livres*, but there is usually a premium upon gold (against silver) of 7 to 8 per cent.; so that the real value is about 43 *lire* for the *ruspone*, and 14 *lire* 10 *soldi* for the sequin.

* Letter of J. OMEROSI, Esq., late U. S. Consul at Florence, to the Treasury Department, February 1834. Various items of information are derived from this source.

† According to Kelly, the Tuscan *libbra* weighs 5210 grains troy. We deduce the same basis from Becher.

SILVER COINS. These are somewhat intricate, on account of their having three different units or starting points; which, however, bear a certain relation to each other. The first series is based upon the *paolo* or paul, the second upon the *lira*, and the third upon the *fiorino* or florin; and all of these are current. It will be useful to observe that the paul is equal to two-thirds of the livre, and that the paul and livre together are equal to the florin. Thus in our money the paul is worth 10·4 cents, the livre 15·6 cents, and the florin 26 cents.

The first series originated in 1733, and consisted of five pieces. The largest was the piece of ten pauls, (*dieci paoli*), and was called (after the Grand Duke's name) first *francescone*, afterwards *leopoldone*. The smaller coins were of five, two, one, and one-half paul. The paul was subdivided into 40 *quattrini*. The legal fineness of these coins was $\frac{11}{12}$, or 917 thousandths; and the weight, at the rate of 23 $\frac{1}{2}$ deniers, or 27·3 grammes, or 424·7 grains troy for the piece of ten pauls.

The second series was that introduced by the new dynasty in 1803. It consisted of the ten livre (*dieci lire*), five, one, and one-half livre. They were at the fineness of 11 $\frac{1}{2}$ parts in 12, or 958 thousandths; the weight of the ten livre piece was 303 grains Tuscan, or 603·3 grains troy. These coins are now very rare.

The third series originated in 1826. It consists of the fiorino or florin, with its half and quarter; the fineness $\frac{11}{12}$, or 917 thousandths, and the weight, 106·2 troy grains per florin. This piece is in effect the quarter of a leopoldone; and it is subdivided into 100 quattrini. Besides these, there are sundry pieces of billon, such as the *crazia* or $\frac{1}{8}$ paul, the piece of 10 *quattrini* or $\frac{1}{16}$ florin, &c.

The silver coins of Tuscany, especially of the more recent dates, are found to be of better fineness than the legal standard, and are in fact almost equal to British sterling.

Accounts are kept in livres or *lire* of 20 sous or *soldi*, subdivided into 12 deniers or *denari*. Fifteen leopoldones are equal to 100 *l*.

A large part of the gold dust raised in Guinea, is brought to Leghorn. It is there cast into bars, and after a mint-assay at Florence, finds its way, for the most part, to Geneva and the French dominions.

GOLD COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|---------------|-----------|----------------|-----------------|-------------------|--------------------|
| Ruspone . . . | 1738-65 | Francis III. | 160 | 997 | 6 87 |
| do. . . . | 1765-92 | Leopold. | 160 | 997 | 6 87 |
| Sequin . . . | 1765-79 | do. | 53 | 997 | 2 27 6 |
| Ruspone . . . | 1795-1800 | Ferdinand III. | 160·5 | 997 | 6 89 1 |

GOLD COINS (CONTINUED).

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-----------------------|---------|------------------------------|-----------------|-------------------|--------------------|
| Ruspone . . . | 1801-03 | Louis I. | 161 | 998 | 6 91 9 |
| do. . . . | 1803-07 | Charles I. and Maria Louisa. | 161 | 998 | 6 91 9 |
| do. . . . | 1824-34 | Leopold II. | 161 | 999 | 0 92 5 |
| Sequin . . . | 1824-34 | do. | 53·5 | 999 | 2 30 1 |
| Eighty florin piece . | 1827 | do.* | 506 | 993 | 21 76 8 |

SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. M. |
|-------------------|-----------|------------------------------|-----------------|-------------------|--------------------|
| Francescone . . . | 1740-65 | Francis III. | 419 | 920 | 1 03 8 |
| Half do. . . . | 1740-65 | do. | 198 | 919 | 49 |
| Leopoldone . . . | 1765-91 | Leopold. | 421 | 920 | 1 04 3 |
| Half do. . . . | 1779-87 | do. | 205 | 917 | 50 6 |
| Ten pauls . . . | 1791-1801 | Ferdinand III. | 419 | 920 | 1 03 8 |
| do. . . . | 1803 | Louis I. | 419·5 | 918 | 1 03 7 |
| do. . . . | 1803-07 | Charles I. and Maria Louisa. | 420 | 917 | 1 03 7 |
| Ten livres . . . | 1803-07 | do. | 607 | 962 | 1 57 3 |
| Five livres . . . | 1803-07 | do. | 303 | 962 | 78 5 |
| One livre . . . | 1803 | do. | 59 | 959 | 15 2 |
| Half do. . . . | 1821 | Ferdinand III. | 28·5 | 960 | 7 4 |
| Ten pauls . . . | 1814-24 | do. | 421 | 920 | 1 04 3 |
| Five pauls . . . | 1820 | do. | 209 | 920 | 51 8 |
| Leopoldone . . . | 1830-34 | Leopold II. | 422 | 925 | 1 05 1 |
| Half paul . . . | 1832 | do. | 21 | 922 | 5 2 |
| Florin | 1826-28 | do. | 105·5 | 925 | 26 3 |
| Half do. . . . | 1827 | do. | 52 | 925 | 13 |

* This piece (noticed by Mr. Ombrosi) was probably not coined after 1827, when it was introduced. It is not now current.

UNITED STATES.

THE coinage and monetary system of our own country, may properly claim in this treatise a somewhat extended notice.

The territory which now bears the name of *The United States*, was in the possession of savage tribes until the seventeenth century. In 1607 the first company of emigrants arrived from Europe, and established the colony of Virginia. At intervals of a few years, new settlements were made in various other quarters; and before the close of that century, the foundations were laid for twelve of the thirteen colonies, which eventually became a Union of free States.

The earliest metallic currency of each colony consisted chiefly of the coins of its mother country. In Massachusetts, however, (and doubtless in all the settlements,) specie was so scarce, that for many years it was common to pay taxes, and to carry on internal trade, by transferring, at certain rates, cattle, skins, and the products of the soil.* Various considerations, enhanced by the inconvenience and uncertainty of such a medium, induced the Massachusetts colony in 1652 to establish a mint. The law enacted for that purpose, provided for the coinage of shillings, sixpences, and threepences, to be of the fineness of sterling silver (925 thousandths), and by a reduction of weight, to be "two-pence in the shilling of less valew than the English coyne."† The mint met with much opposition from the British crown, whose prerogative was invaded by its operations, but continued in existence more than thirty years, during which time a considerable amount of coin was issued. These coins are now extremely scarce, and indeed are not to be found except in the cabinets of the curious. Only the shilling has been seen at this mint, the best specimens of which, at this day, weigh from 64 to 67 grains, and by a recent assay prove to be 926 thousandths fine; the intrinsic value, therefore, is about $16\frac{2}{3}$ cents. They are a rude coinage, very thin, and of various diameters; and there is some variety in the impressions; but the date of 1652 appears on all of them. The device of a *pine tree* on one side, has given to the series the common designation of the "pine tree coinage." They were taken in England at a discount of one-fourth of their home value.

* See Felt's "Historical Account of the Massachusetts Currency," 1839. This work contains much interesting and valuable information.

† The mint indenture or contract required that the shilling should weigh 72 grains, and the smaller pieces in proportion. As the English shilling of those days weighed 93 grains, there appears an unaccountable miscalculation. An abatement of one-sixth of the value would have made $77\frac{1}{2}$ grains.

The example of Massachusetts was followed by Maryland, where silver and copper coins were issued in 1662. These pieces were to be equivalent to the British, but in reality were not much heavier than the like denominations coined at Boston.

These were the only issues of silver coin previous to the independence of the States. There were, however, various pieces of copper struck at different periods; as, in 1694, the half-penny for the Carolinas, a two-penny piece and penny in 1723, another penny in 1733, and a half-penny for Virginia in 1773. After the revolutionary struggle of 1776-82, and before the establishment of the National Mint, there were various emissions of silver and copper by States and individuals, which will be noticed farther on.

As the population and trade of the colonies increased, foreign gold and silver coins found their way into the country, and became a part of the circulating medium. These were chiefly the guinea, the joe and its half, the doubloon and pistole, in gold; the dollar and its parts, the pistareen and its parts, and the British shilling and sixpence, in silver. French crowns were not known until the Revolution, when they became common. But of the specie currency, no piece was so well known as the Spanish-American dollar; insomuch that, about the epoch just referred to, it became the effective standard or unit of our moneys.

The *pound* of the colonies was at first the same as the pound sterling of England, being simply a money of account. This relation, in process of time, became greatly altered, in consequence of excessive issues of paper by the colonial authorities; but as these issues were greater in some of the colonies than in others, the proportion was very unequal and complicated. The following were the rates of the colonial pounds, in sterling pounds and Spanish dollars, after the Revolution.

| | NEW ENGLAND AND VIRGINIA. | NEW YORK AND NORTH CAROLINA. | MIDDLE STATES. | SOUTH CAROLINA AND GEORGIA. |
|--------------------|------------------------------|---------------------------------|----------------|--------------------------------|
| | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
| Pound sterling . . | 1 6 8 | 1 15 6 $\frac{2}{3}$ | 1 13 4 | 1 0 8 $\frac{2}{3}$ |
| Spanish dollar . . | 6 0 | 8 0 | 7 6 | 4 8 |

Peace was scarcely concluded, before the preliminary step was taken towards a national coinage. Congress directed the Financier of the confederation, Robert Morris, to lay before them his views upon the subject of coins and currency. The report was presented early in 1782, and is stated by Mr. Jefferson to have been the work of the Assistant Financier, Gouverneur Morris. It will be interesting to trace

the steps by which three grand benefits have been secured to this country; the establishment of a uniform national currency—the rejection of mere moneys of account, or rather, making them the same with real moneys—and the adoption of a decimal notation.

All these objects were in the eye of the Assistant Financier. He first laboured to harmonize the moneys of the States; and found that the $\frac{1}{10}$ th part of a dollar (Spanish) was a common divisor for the various currencies. Starting with this fraction as his unit, he proposed the following table of moneys:

Ten units to be equal to one penny.

Ten pence one bill.

Ten bills one dollar, (about two-thirds of the Spanish dollar.)

Ten dollars one *crown*.*

The report contains this observation: “Although it is not absolutely necessary, yet it is very desirable, that money should be increased in a decimal ratio; because by that means, all calculations of interest, exchange, insurance and the like, are rendered much more simple and accurate, and of course more within the power of the great mass of the people.”

The subject was discussed repeatedly in Congress, but no further step was taken until 1784, when Mr. Jefferson, on behalf of a committee appointed for the purpose, brought in a report, disagreeing with that of the Financier, except as to the decimal system. The following remarks occur in this document: “The most easy ratio of multiplication and division, is that of ten. Every one knows the facility of decimal arithmetic. Every one remembers, that when learning money arithmetic, he used to be puzzled with adding the farthings, taking out the fours, and carrying them on; adding the pence, taking out the twelves, and carrying them on; adding the shillings, taking out the twenties, and carrying them on; but when he came to the pounds, where he had only tens to carry forward, it was easy and free from error. The bulk of mankind are schoolboys through life. Certainly, in all cases, where we are free to choose between easy and difficult modes of operation, it is most rational to choose the easy. The Financier, therefore, in his report, well proposes that our coins should be in decimal proportions to one another.”

He found fault with the *unit* of Mr. Morris, first, on account of its diminutive size: “A horse or bullock of eighty dollars value would require a notation of six figures, to wit, 115,200 units;” secondly, because of its want of correspondence in value, with any known coins. In lieu of this the Spanish dollar was proposed, as being of

* This last coin was to be of gold. He apologized for introducing the name of *crown*, in a country where that emblem had lost favour, by stating that his project was to have on the coin the representation of an Indian, with a bow in his left hand, and thirteen arrows in the right, with his right foot on a crown. (Sparks's Life of Gouverneur Morris, i. 273.)

convenient size, capable of easy actual division, and familiar to the minds of the people. It was added, that the course of our commerce would bring us more of this than of any other foreign coin; and besides, the dollar was already as much referred to as a measure of value, as the respective provincial pounds. Upon this basis, it was proposed to strike four coins, viz.:

A golden piece, of the value of ten dollars.

A dollar in silver.

A tenth of a dollar, also in silver.

A hundredth of a dollar, in copper.

The Assistant Financier conceded something to Mr. Jefferson's views, but adhered to the main principles of his own scheme. It would be out of place to enter into the arguments offered on behalf of each proposition; it is sufficient to say, that Congress in 1785 adopted Mr. Jefferson's report, and in the following year made legal provision for a coinage upon that basis.*

All these proceedings were, of course, under the *Confederation*, which lasted from 1773 to 1787. An article in that compact provided as follows: "The United States, in Congress assembled, shall have the sole and exclusive right and power of regulating the alloy and value of coin struck by their own authority, or by that of the respective States." Some of the States issued copper coins during that period. How long they continued current cannot be stated; but at this day, those of them that remain, are in the custody of coin-collectors. The cent of Massachusetts varies in weight from 143 to 164 grains; the New Jersey piece, 123 to 154 grains; the Connecticut coin is the most irregular, varying from 96 to 144 grains. The Vermont cent of 1786, weighs about 110 grains. There are also other varieties, particularly the "Nova Constellatio," of thirteen stars, and another piece with the same significant number of *rings*, conjoined, both of which were coined in Massachusetts.†

The Constitution of 1787 arrested all these local issues, and vested the right of

* The interest taken in this subject by General Washington, and his approval of Mr. Jefferson's plan, appear by the following passage in a letter to Mr. Grayson, Member of Congress.

"I thank you for the several articles of intelligence contained in your letter, and for the propositions respecting a coinage of gold, silver, and copper; a measure which, in my opinion, has become indispensably necessary. Mr. Jefferson's ideas upon this subject are plain and simple; well adapted, I think, to the nature of the case, as he has exemplified it by the plan. Without a coinage, or unless some stop can be put to the cutting and clipping of money, our dollars, pistareens, &c. will be converted, as Teague says, into *five* quarters; and a man must travel with a pair of scales in his pocket, or run the risk of receiving gold at one-fourth less by weight than it counts." (Writings of Washington, edited by Sparks, ix. 125.)

The illustrious Father of his Country took a lively interest in the national coinage. The mint was repeatedly noticed in his messages to Congress. (See Sparks, xii. 25, 32, 53, 63.) It was his practice, whilst President, to visit the institution frequently; the seat of government being then at Philadelphia.

† In this place it may be proper to notice a coinage of silver, bearing the name of "J. Chalmers, Annapolis," and dated 1783. The specimens reserved in the collection at the mint, are a shilling, sixpence, and threepence, weighing 57, 27, and 10 grains respectively; of course, very carelessly proportioned.

coinage solely in the general government. The establishment of a mint was, however, still delayed. In the well known report on moneys, weights and measures, made to Congress in 1790 by Mr. Jefferson, then Secretary of State, it was remarked: "The experiment made by Congress, in 1786, by declaring that there should be one money of account and payment through the United States, and that its parts and multiples should be in a decimal ratio, has obtained such general approbation, both at home and abroad, that nothing seems wanting but the actual coinage, to banish the discordant pounds, shillings, pence, and farthings of the different States, and to establish in their stead the new denominations."

On the 2d April, 1792, a code of laws was enacted for the establishment and regulation of the mint, under which, with slight amendments, the coinage was executed for forty-two years.

The denominations of coin, with their rates, were as follows:

GOLD. The eagle of ten dollars, to weigh 270 grains, the half and quarter in proportion; all of the fineness of 22 carats, or 917 thousandths.

SILVER. The dollar of 100 cents, to weigh 416 grains; the half, quarter, tenth or dime, and twentieth or half-dime, in proportion; the fineness to be 1485 parts in 1664,* or 392·4 thousandths.

COPPER. The cent, to weigh 264 grains; the half-cent in proportion.

Since the act of 1792, the following alterations in the standards have been made:

On the 14th January, 1793, the weight of the cent was reduced to 208 grains; the half-cent in proportion.†

January 26th, 1796. President Washington issued a proclamation (as he had been empowered to do by law), that "on account of the increased price of copper, and the expense of coinage," the cent would be reduced to 7 dwts. or 168 grains, and the half-cent in proportion. The copper coins have since remained at this standard.

June 28th, 1834. An act was passed, changing the weight and fineness of the gold coins, and the relative value of gold to silver. Before stating the alterations, it may be proper to observe, that the estimate of gold as being worth fifteen times as much as silver, which was the original basis, was found too low at the market value; which, although always fluctuating, was nearer sixteen to one, upon a general

* This was an arithmetical nicety, deduced from a weight of 416 grains, of which 371½ grains must be fine metal; this being considered the average content of a Spanish dollar. The estimate was slightly erroneous, and makes our dollar of a little less value; the effect of which has been beneficial to our national coinage, as the difference, though not appreciable in ordinary currency, makes a considerable gain upon recoinage in large sums. See letter of Dr. Moore, late Director of the Mint, to a select committee of Congress, in 1832.

† The mint was not fully in operation until January 1795. Before that time it was rather engaged in experimenting; hence the variety of specimens, in silver and copper, anterior to that date, which are now so much in request among the virtuosi. The most noted of these is the Washington Cent, of which some mention has been made at page 15.

average. The effect of our legal proportions was to reduce the coinage of gold, and to restrain its circulation; being always at a premium, the coin was immediately exported to Europe, in the course of trade, and there quickly wrought into other shapes.

To provide a remedy for this evil, engaged the attention of some of our most eminent statesmen for a series of fifteen years.* At length, in June 1834, the weight of the eagle was reduced by law to 258 grains (the parts in proportion), of which 232 grains must be fine gold, making the fineness 21 carats $2\frac{1}{3}$ car. grains, or $899\frac{2}{3}$ thousandths. This was an increase of $6\frac{8}{1000}$ per cent. on the former value of gold. The silver coinage was not changed.

The disadvantages of the complex standards of fineness, both in gold and silver, which were difficult to be expressed or remembered, and very inconvenient in regard to the frequent calculations which were based upon them, early determined the present Director to endeavour to effect an improvement. The standard of nine-tenths fine, as adopted in France and some other countries, was obviously the most simple, and, upon every consideration, the most suitable. To bring our silver coins to that proportion, without changing the amount of fine silver in them, it was only necessary to put less copper, by $3\frac{1}{2}$ grains, in the dollar, reducing its weight to $412\frac{1}{2}$ grains. The weight of the gold was not to be changed, but the fineness increased about three-fourths of one thousandth, a difference far within the scope of the legal allowance, and of course hardly appreciable. These proportions were incorporated in a carefully digested and consolidated code of Mint Laws, which was enacted by Congress in January 1837. By that act, the eagle is to be 900 thousandths fine, and to weigh 258 grains; the half and quarter in proportion; and the dollar, at the same fineness, to weigh $412\frac{1}{2}$ grains; the parts in proportion.† The allowed deviation in fineness, for gold, is from 898 to 902; for silver, 897 to 903.‡

* The first movement appears to have been made in 1819, by Mr. Lowndes, as chairman of a committee in Congress, who proposed to raise the value of gold to 15·6 against one of silver. Mr. Gallatin, Mr. Ingham, and Mr. C. P. White proposed very nearly the same proportion, at different times. Dr. Moore, then Director of the Mint, offered a choice of 15·777 with a fineness of eleven-twelfths, or 15·865 with a fineness of nine-tenths. Mr. Sanford's proportion was 15·9. Eventually, the rate of 16 to 1, which was favoured by the existing administration (Gen. Jackson's), was adopted. It was feared at the time that the habitual state of the market of precious metals would not justify so high a valuation. It is a remarkable fact, however, that our gold and silver coins have ever since that date passed concurrently, without premiums either way. How long this even pace is to continue will depend upon many contingencies, but especially upon the mining operations. The effect of this valuation upon the labours at the mint, has been very decided. During the eight years which have succeeded the change of ratio, (1834-41,) the coinage of gold at the mint and its branches, has been sixteen millions of dollars, exclusive of the recoinage of pieces of old standard; while, in the eight years immediately preceding (1826-33), the amount was less than four millions. The coinage of silver, from 1826 to 1833, was nineteen and a half millions; from 1834 to 1841, twenty millions.

† The relative value, therefore, of silver to gold, is 15·9884 to 1.

‡ The practical limits here, are, for gold 899 to 901; silver, 898 to 902.

The following is a recapitulation of the various standards, of the gold and silver coins.

| | GOLD EAGLE. | | SILVER DOLLAR. | |
|-------------------------------|-----------------|---------------------|-----------------|---------------------|
| | WEIGHT. GRS. | FINENESS. THOUS. | WEIGHT. GRS. | FINENESS. THOUS. |
| Act of April 2, 1792 . . . | 270 | 916·7 | 416 | 892·4 |
| Act of June 28, 1834 . . . | 258 | 899·2 | | |
| Act of January 18, 1837 . . . | 258 | 900 | 412·5 | 900 |

It will be proper, in concluding this article, to explain briefly the organization of the Mint of the United States. Until the year 1835 there was but one institution, which was located at Philadelphia. In that year three *branches* of the mint were created by Act of Congress. Two of these were for the coinage of gold only, and were to be situated at the towns of Charlotte in North Carolina, and Dahlonega in Georgia—central points of the gold mining region. The third branch was for both gold and silver, and located at New Orleans, the commercial emporium of the southwest. These three institutions, which, in the view of the law are not distinct mints, but rather branches of the mint, are respectively managed by Superintendents, who are under the control of the Director of the parent mint. The branches went into operation in the year 1833. Their coinage is uniform with that of the establishment at Philadelphia, being systematically tested there for approval.

The whole mint establishment, thus constituted, is itself a bureau or branch of the Treasury Department of the general government, and is under the supervision of the Secretary of the Treasury. Its operations are annually reported through the President to Congress, and are laid open to the public through that body.

VENICE.

Venezia.

THIS ancient city and republic, so long renowned for its wealth, power, and commercial enterprise, but now in comparative decay, would have been prominent in a work like the present, a century ago. The sequin (*zecchino*) of Venice was

formerly a current coin in three continents, and seemed to occupy the place which in later times has fallen to the Spanish and Mexican dollar. This coinage declined at the close of the last century, and there appears to be no coin of gold or silver properly Venetian (except some small pieces issued by Austrian authority) since the French invasion of 1797. Having fallen into collision with that republic, it became, in that year, a prey to Bonaparte's army, and has never regained its independence. By the treaty of Campo-Formio it was ceded to Austria, in 1807 it was annexed to the Milanese kingdom of Italy, and in 1815 became a part of the Lombardo-Venetian kingdom, subject to Austria.

The most important coins of Venice were the sequin above noticed, which was equal in all respects to the same coin of Tuscany (which see), and the *tallaro* or dollar, weighing about 433 grains, at 333 thousandths fine, and worth 98 cents.* For the present coins of Venice, see *Austria* and *Milan*.

WEST INDIES.

ALL of the West India islands, except *Hayti* or *San Domingo*, are dependencies of European nations. Without giving a minute table of them, it will be sufficient to state the following general divisions:

To Great Britain belong *Jamaica*, *Bahamas*, *Barbadoes*, *Trinidad*, and numerous smaller islands. To Spain, *Cuba* and *Porto Rico*. To France, *Guadaloupe*, *Martinique*, and a few others. To Netherlands, *Curaçao*. To Sweden, *St. Bartholomew*. To Denmark, *St. Croix*, *St. Thomas*, and *St. John*. *Hayti*, the second island in size, and perhaps the first in population, formerly a possession of France and Spain, is an independent republic.

There appears to have been no gold coin struck by any of the governments for the West Indies especially. Of silver coins there are a few varieties.

British Possessions. In 1822, coins were struck in England for the colonies, consisting of the quarter dollar, the eighth, and the sixteenth. They are of the average weight and fineness of the Spanish coin, of like denominations.

Danish Possessions. From 1763 to 1767, pieces were coined of 24 and 12 skillings, in 1816, 20 and 10 sk. pieces, and in 1837 a piece of 2 sk.

Hayti. On the breaking out of the French Revolution in 1791, this island was thrown into a commotion which lasted for many years. In 1806 the French part of it

* On Venetian coins the name of the Doge appeared, but usually there was no date. We may add therefore that Aloise Mocenigo was in the chair from 1763 to 1779; Paul Reiner to 1788; and Louis Manin to the end of the republic.

became a kingdom, or military despotism, consisting entirely of negro citizens, who had previously been slaves, with Dessalines, a black man, for its monarch. He was succeeded by Christophe, or Henry I., who put an end to his own life in 1820. In another part of the island a republic had already been established, under the presidency of Petion. He was succeeded by J. P. Boyer, who in 1822 became master of the whole island, and is still at the head of the so-called republic.

The coins of Hayti, so far as we have seen, consist of four denominations, viz.: 50, 25, 12, and 6 *centimes*. The subdivision is not mathematically correct, but there is more precision in that particular, than in weight and fineness.

The West India islands generally depend upon the coins of Great Britain and Spanish America for their metallic currency. Sovereigns, shillings, doubloons, and dollars, seem to be every where familiarly known. The Portuguese half-joes, and a counterfeit of them, not greatly inferior in fineness, said to have been manufactured in the United States, were formerly current, but are now becoming rare. It has also been customary to cut up Spanish dollars into fragments for change, putting a stamp of authority upon each section. In Trinidad, to prevent the exportation of dollars, the expedient was resorted to (as it is said) of cutting a piece out of the centre, equal to a real, or one-eighth of a dollar, *more or less*. Thus the dollar was kept at home, and made to yield nine reals. Such pieces were called *cut dollars*; the whole pieces were named *round dollars*.

The specie currency of British West India is at present regulated by an Order in Council, of September 1833. The following table will exhibit the regulations, with other statistics.*

| | VALUE, BY ORDER IN COUNCIL. | | | COST FOR EXPORT. | |
|--|-----------------------------|----------------------|----------------------|------------------|----------------------|
| | IN DOLLARS. | BRITISH STERLING. | JAMAICA CURRENCY. | IN DOLLARS. | JAMAICA CURRENCY. |
| | | £ s. d. | £ s. d. | | £ s. d. |
| Royal doubloons of Spain, parts at the same rate . . . } | \$16 00 | 3 4 0 ⁵ | 5 6 8 | \$17 12 | 5 14 2 |
| Patriot doubloons of all the Spanish- American republics, and parts at the same rate . . . } | 16 00 | 3 4 0 | 5 6 8 | 16 80 | 5 12 0 |
| Silver dollar, royal or patriot . . . | . . | . . | . . | 1 05 | 7 0 |
| British sovereign | . . | . . | . . | 5 00 | 1 13 4 |
| British shilling—the other denomi- nations in proportion . . } | . . | . . | . . | 26½ | 1 9 |

* For this table, with other details, we are indebted to R. MONROE HARRISON, Esq., U. S. Consul at Kingston, Jamaica. We have also the advantage of a letter from DAVID ROGERS, Esq., U. S. Consul at St. Croix.

The nominal or par value of the silver dollar is 6s. 8*d.*, of the British sovereign 33s. 4*d.*, and of the shilling 1s. 8*d.*, in Jamaica currency.

SILVER COINS.*

| DENOMINATION. | DATE. | GOVERNMENT. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|----------------------|---------|------------------------------|-----------------|---------------------|--------------------|
| Quarter dollar . | 1822 | George IV. of Great Britain. | 102·5 | 895 | 24 7 |
| Eighth do. . . | 1822 | do. | 50 | 895 | 12 1 |
| Twenty-four skilling | 1763-65 | Danish-American. | 96 | | |
| Twenty do. . . | 1816 | do. | 73·5 | 630 | 12 5 |
| Ten do. . . . | 1816 | do. | 36 | 630 | 6 1 |
| Two do. . . . | 1837 | do. | 18 | | |
| Twenty-five centimes | Year 14 | Petion, President of Hayti.† | 38 | 824 | 8 4 |
| Twelve do. . . | Year 14 | do. | 22 | 710 | 4 2 |
| Twelve do. . . | Year 11 | Republic of Hayti. | 13·5 | 590 | 2 1 |
| Fifty do. . . . | Year 25 | Boyer, President. | 86·5 | | |
| Twenty-five do. . | Year 15 | do. | 35·5 | | |
| Twelve do. . . | Year 24 | do. | 21 | | |
| Six do. | Year 15 | do. | 8·5 | | |

WESTPHALIA.

Westphalen.

THIS was a kingdom created by Napoleon in 1807, for his brother Jerome, consisting mainly of territories in the north and west of Germany, which are now a part of Prussia. Both gold and silver coins were issued for this brief monarchy, and are occasionally met with in miscellaneous parcels of German money. The gold

* There are some pieces of West India currency, which we cannot place in the table, because they are worn perfectly smooth, and their original cannot be determined. They are higher in quality than Spanish or French coin, and lower than British, being 918 thousandths fine. They are stamped with the figures 7, 10, 14, &c. and are worth about so many cents of our money.

† Another piece was 890 fine, showing a gross irregularity. These pieces are said to have been extensively counterfeited in this country, for export to Hayti.

coins were ten-thaler pieces, of several dies, but uniform in weight and fineness, and upon a level with those of Brunswick, Saxony, &c. (which see.) The silver coins were florins, or two-third pieces of nearly fine silver, as in Brunswick and Hanover; convention-dollars, of ten to the fine mark, and pieces of 2 *franken* or francs, of the French standard.

W U R T E M B E R G.

THIS country, one of the most considerable states of Germany, was of the grade of a duchy until 1803, when it was raised to an electorate, and in 1806 was made a kingdom, through the influences of the French Emperor.

The Duke Charles Eugene reigned from 1737 to 1793. Louis Eugene succeeded, and reigned less than two years. Frederick Eugene enjoyed the sovereignty but little longer. In 1797 he was succeeded by Frederick William, who as already stated, passed through two gradations of title, to that of King. His son William, present monarch, ascended the throne in 1816.

GOLD COINS. The *carolin* ceased to be coined about a century ago. The only gold piece is the *ducat*, of the standards of the empire. (See *Germany*.)

SILVER COINS. These are the *convention-thaler*, of ten to the fine mark, discontinued of late years; the *kronen-thaler*, or crown, the gulden and double gulden, and the new gulden or florin coined under the mint-conventions of 1837-33, besides the *scheidemünze* or small coins.

The coins of Wurtemberg are scarcer in this part of the world, than those of most other German states. The new gulden has not been seen as yet at this mint.

GOLD AND SILVER COINS.

| DENOMINATION. | DATE. | REIGN. | WEIGHT. GRS. | FINENESS. THOUS. | VALUE. D. C. M. |
|---------------------|---------|------------|-----------------|---------------------|--------------------|
| Ducat . . . | 1790 | Charles. | 53 | 980 | 2 23 7 |
| do. . . . | 1818 | William. | 53 | 980 | 2 23 7 |
| Convention-thaler . | 1760-84 | Charles. | 428 | 836 | 96 4 |
| do. . . . | 1806 | Frederick. | 430 | 833 | 96 5 |
| Crown | 1818-33 | William. | 454 | 875 | 1 07 |
| Double gulden . | 1824 | do. | 392 | 750 | 79 2 |
| Gulden | 1824 | do. | 195 | 750 | 39 4 |

CHAPTER III.

GOLD AND SILVER BULLION.

THE term *bullion** is commonly applied to gold or silver, reduced from the ore, but not manufactured. At the mint it is taken in a wider sense, and includes all gold and silver suitable for coining operations, with the exception only of our own coin. In this sense the term will be understood in the remarks which follow.

The precious metals come to the mint in a great variety of forms, from the first reductions at the mines to the most delicate and elaborate plate and ornaments. Indeed, nothing but ores, and very base alloys,† are rejected as unsuitable for minting operations. It is presumed that some details upon the various kinds of bullion (of which we have seen no methodical treatise) will be interesting to the general reader, and especially useful to dealers. The information proposed to be given, respects the physical characters of the various sorts of bullion, the countries whence derived, and the usual fineness; with precautions against fraud, in cases where it is found to occur.

The two metals will be treated of separately, and a third division will be given to those metals in a combined state.

GOLD BULLION.

This is to be considered as of two kinds: I. UNWROUGHT. II. MANUFACTURED.

1. Of the first sort, are the various forms in which the metal comes from the mining regions, and which may be comprised within the four following: 1. *Washed grains, or gold dust.* 2. *Amalgamated cakes and balls.* 3. *Laminations.* 4. *Melted bars, and cakes.*

* Our standard dictionaries concur in deriving this word from the French *billon*, which signifies *base coin*. (See a note at page 9.) Other authorities have more carefully traced it to the Latin *bullæ*, applied to ornamental balls of gold or silver, anciently worn on certain occasions.

† Such as counterfeit coins, containing a small proportion of good metal; also bars and lumps, melted down from the sweepings of jewellers' shops, and holding a doubtful rank between bullion and solder.

1. WASHED GRAINS.

These are shapeless particles or masses, in the state in which they remain after the simple process of washing from the rich alluvial sands. They are of all sizes, from the massive lump to the minutest spangle. The latter form is by far the most usual, inasmuch that it is aptly enough called *gold dust*. There are, however, remarkable exceptions on record, and nearly every mining region can boast of its large lumps of gold. Some of these are deserving of special notice.

In Cabarrus County, North Carolina, a lump was found which weighed, in the crude state, 23 pounds avoirdupois. It lay near the surface of the ground, and was dug up by a negro. This happened at the commencement of the mining operations.* The lump was melted, and cast into bars; and is believed to have been the same parcel which was brought to the mint in May 1804, and which constituted the first deposit of United States gold. Its value was \$4850. Many heavy masses have since been found, but none equal to this. The largest native lump received from Georgia, weighed $35\frac{1}{2}$ ounces troy, and was worth \$700.

In South America, the largest *pepita* found in Peru weighed $26\frac{1}{2}$ pounds.† Another occurred in New Grenada, of $27\frac{1}{2}$ pounds.‡ A lump in the possession of the French Academy, weighs about $37\frac{1}{2}$ pounds troy, and being 992 thousandths fine, is worth over \$9200; the French valuation is 43,000 francs.§ Baron Humboldt, in a recent essay,|| states that the largest lump (*goldgeschiebe*) found in the Russian mines, weighs $24\frac{3}{8}$ Russian pounds, (equal to 27 pounds troy,) and is preserved in a collection of minerals at St. Petersburg. Thus the lottery of gold mining, in every country, relieves its blanks by occasional brilliant prizes.

In most forms of bullion not improved by art, a practised eye can judge with tolerable accuracy of the quality of the metal. There is much uncertainty, however, in pronouncing upon gold dust, which is commonly soiled and dimmed with earthy matter. Still, if there is a large alloy of silver, the paleness of colour will be manifest.

Gold in its native state is invariably alloyed with silver, in a greater or less proportion. In some locations, particularly the Brazilian mines, *palladium*¶ is found mixed with the gold; and in New Grenada *platinum* is often present.** Other baser

* Silliman's Journal, vol. ix.

† Mentioned by Baron Humboldt.

‡ Ure's Dictionary of Mines, &c.

§ Ann. de Chimie, vol. lxxii. 52.

|| Karsten's Archiv., Berlin, 1839.

¶ This valuable metal was discovered by Wollaston in 1803, accompanying platinum. It was first found in combination with gold, a few years later, by Joseph Cloud, formerly Melter and Refiner in the United States Mint. It is now principally obtained from Brazil gold, and is very useful in some of the arts, as in dentistry and the construction of delicate machinery. Our assay-balances are chiefly made of this metal.

** On one occasion, a parcel of gold dust from the latter country, weighing 356 ounces troy, was melted at this mint, and found to contain $7\frac{1}{2}$ ounces of platinum. Being too stubborn to yield to furnace-heat, it remained as a cake in the bottom of the crucible, and was found to contain nearly $\frac{1}{2}$ of one per cent. of gold.

metals, such as tin, lead, &c. are contained in native gold, in very small proportion, but often sufficient to render the texture brittle.

There certainly is room for fraudulent practices in the traffic of gold dust, but our experience does not prove that it is much to be apprehended. It has been said that the Africans intermix small particles of base metals in the gold resulting from their washings, but the fact is not borne out by trials at this mint.

It is not unusual for the miners, especially in our own country, to melt down the grains, and cast the metal into bars or cakes, preliminary to transmission for coinage. This form is the most advantageous for all parties. Owing to the presence of dirt and moisture, a considerable loss (varying from $1\frac{1}{2}$ to 10 per cent. of the weight, but ordinarily about 3 per cent.) invariably accrues in the fluxing of native dust, and it is desirable that this should fall within the personal cognizance, as well as responsibility, of the owner. Grains are also less convenient and secure in transportation, and too much exposed to diminution by accident or otherwise.

The sources whence the gold dust is derived which is brought to the Mint of the United States, are, the mines of our southern States, of Mexico, Central America, various parts of South America, and the western coast of Africa.

Before entering into a detail of these localities, it may be remarked, that from the mines of our own country gold is brought to the mint in the three forms of dust, amalgam, and bars; but (except in certain instances of fraud, as will hereafter be noticed,) there is, as to fineness, no marked preference for either of these forms; so that what is said of one sort is so far applicable to the rest. Here also it should be observed, that the classifying of gold by countries, or even by districts, is vague and unsatisfactory. Mines in the same region, though tolerably uniform within themselves as to the customary fineness of their product, are widely different from each other. Thus in Georgia, one mine yields habitually gold of 980 to 990 thousandths fine, while another, not many miles distant, produces the inferior fineness of 830. The variation is still more striking in North Carolina, where the gold is from 580 to 980 fine.

Virginia gold is seldom brought to the mint in the form of dust, and will therefore be more properly considered under a future head.

The average of *North Carolina* gold, taking the estimate from all the deposits at the Charlotte Branch Mint, was, in 1839, 841 thousandths, and in 1840, 844 thousandths. Depositors often receive both silver and gold as the avails of their bullion, in consequence of the large proportion of silver present.

The gold of *South Carolina*, as compared with that just mentioned, is much less in amount, more limited in its range of fineness, and of a higher average. It is seldom below 900, and varies from that limit to 990; the mean fineness being about 925.

Georgia gold is very variable, but in the aggregate its quality is superior to any yet

mentioned. It has been found as low as 820, and occasionally reaches as high as 995; the nearest approach to absolute purity of any gold ever discovered. The mean of the whole production may be set down at 950. Most of the gold deposited for coinage at the Branch Mint of Dahlonega, in Georgia, is in the form of grains from washings; but it reaches this mint as often in bars, and occasionally in amalgam.

Gold is occasionally found in *Alabama* and *Tennessee*, and the quality is as good in the average as that of Georgia.

Passing from our gold region, which is comprised within the six States already named, the gold dust received from *Mexico* comes next in view. The quarters from which it is quoted are California and Santa Fe. Of the former we can say nothing decisive. Santa Fe is an entrepot for overland traders, situated near the head waters of the Rio del Norte, and eastward of our Indian reservations. The gold from this region is of a high standard, but its most remarkable feature is its uniformity in fineness; insomuch that the coin of the country from which it emanates does not lie within closer bounds. The compass is from 941 to 952 thousandths, but it is safely rateable at 950.

New Granada, long famed for the production of grain-gold, sends a considerable proportion to this mint. Its fineness varies from 825 to 875, and averages 850.* It is usually marked by the presence of platinum, in a minute proportion.

The gold of *Brazil* is chiefly carried to England, and is very variable in fineness.

A considerable quantity of gold dust is brought here from other parts of South America, doubtless from the ports on the Pacific side, but the information is too vague to allow of specifications. Some of it is as low as 780 fine, and requires parting from its silver alloy; in other cases it yields a fineness of 920.

The small island of *Oruba*, situated at the outlet of the Gulf of Maracaybo, on the coast of Venezuela, but subject to the Netherlands, has repeatedly contributed to our stock of gold bullion, during some fifteen years past, and always in the shape of native grains, some of which have been remarkable for size. The fineness of this gold is from 870 to 920.

Africa formerly supplied our mint with a considerable quantity of bullion, in the shape of dust and manufactured rings; but of late years, the deposits have been less frequent. The gold regions of that continent are Kordofan and Sofala, on the eastern side, and Senegambia and Guinea in the west. It is only from the two latter that gold is imported into the United States, and there is reason to believe that our share is insignificant, compared with that which falls to the lot of England and France. It is obtained by the natives from the sands of the rivers. No scientific

* Dr. Ure mentions three localities, in which the gold is of a uniform fineness; at Antioquia, 833; Choco, 875; and at Giron, 990. *Dict. of Mines*, &c. 1839.

exploration, it is understood, has yet been made of these auriferous regions. The ordinary range of gold dust derived from thence, is from 900 to 925 fine; in rare instances it will afford 970.

The rings, as manufactured gold, claim a notice further on.

2. AMALGAMATED GOLD.

Owing to the strong affinity which quicksilver possesses for gold and silver, it is highly useful in collecting the particles of those metals from their ores. Being intimately mixed with the golden sands, or with the pulverized gangues of either metal, it gathers up the scattered grains into a pasty mass. The mercury is then pressed out, as far as it can be, and what remains is driven off by heat, until the metal is left in the state commonly called *amalgam*; or, in the case of silver, *plata pina*. Its substance is porous, granular, and brittle, easily broken by the hand, unless in the heating it has been slightly fused on the outside.

Gold in this form is brought to the mint from our own States, from Western Mexico, and New Granada.

The gold of Virginia is in a great degree collected by amalgamation. Its fineness varies from 670 to 970, but finds its average at 920. Descending to particular locations, the gold of the Greenwood Company has yielded here 943 to 947; that of the United States Company, 930 to 954; the Exploring and Franklin Companies, 920; the Richmond, 895 to 901.

Amalgamated gold from other regions, presents the same varieties as already noticed in speaking of the grains.

Bullion in this form, whether gold or silver, is liable to a very variable, and often considerable loss in melting. It can scarcely be less than two per cent., and in a few cases has amounted to ten; but the more usual compass of loss is from three to six per cent.* To account for this it is only necessary to consider, that besides some portions of earth and quicksilver which remain scattered through the mass, there is a strong attraction for moisture, and abundant room for concealing it. Experiments have been made, to ascertain how much water could be contained in good specimens of silver amalgam or *plata pina*; the results of which will be more properly stated under that head. Whenever this article is a matter of trade, the party purchasing ought to be satisfied that it has been thoroughly dried; and after that, experience proves it necessary to count upon a loss of two or three per cent. in fluxing.

* During twenty months commencing from January 1837, there was received at the mint in amalgam upwards of 3500 ounces. The average loss on melting was $4\frac{1}{2}$ per cent.

3. LAMINATED GOLD.

In those mining regions where the gold is found largely alloyed with silver, it is not unusual to part the metals before they are sent into the market. To effect this, silver is still further added, and in such amount that the gold shall form about one-fourth of the mass;* the whole is then rolled or beaten into thin sheets, and exposed to the action of nitric or sulphuric acid, which in such a proportion is able to remove nearly all the silver, without destroying the cohesion of the gold. When washed and annealed, it appears in the form of small leaves or sheets, but porous and brittle. It must be expected that the treatment will not be uniform, and that in many cases a considerable amount of silver will be protected from the action of the acid, and so remain in the mass. It is owing to this fact, that laminated gold, which in a successful operation should result as high as 990 fine, commonly yields less than 980, and has been found as low as 910. Gold in this form comes from Central America, and from various parts of South America. From the former, the range of fineness is from 910 to 990; the latter varies only from 950 to 990; and from either, the result of 970 may usually be expected. There is a loss in melting such gold, varying from one to ten ounces per thousand; the average of experiments lies midway between those extremes.

As the action of the acid leaves a dull but fine gold surface, the silver present is concealed, so that the eye cannot judge as to its quality.

4. BARS AND CAKES.

It has already been observed, that the miners frequently melt and cast the metal, before sending it for coinage. In our mining region, the usual form employed is that of a neat ingot, about six inches long, and one-half to one inch in breadth and thickness. From the general result of the assays of such bars, it is evident that they are fluxed down from the grains or amalgamations without any addition of alloy, or any attempt to improve them in purity or ductility.

Here, however, it is necessary to state some facts, which may warn dealers against imposture.

It is well known, that by a certain course of treatment called *pickling*, (plunging in acid,) a bar of gold, even if so base as scarcely to deserve the name, may be made to appear externally of a high grade of purity; the other metals in the mass being dissolved and removed from the surface, and the gold alone remaining visible.

* Hence the process is technically styled *quartation*.

Within three years, eleven parcels of such bars, all from Georgia,* have been brought to the mint. The value of these at the apparent fineness would have amounted to 61,000 dollars; the actual produce was only 38,000. To the eye, they exhibited the rich yellow which indicates an approach to absolute purity; but an interior view, by chipping off an assay-piece, or a remelt of the whole mass, showed the metal in its true colour. From a comparison of all the cases, there seems to have been some method in this artifice. The prevailing proportion of gold was 600 thousandths; of silver 350, and of copper 50. The two extremes are subjoined, to show how far it is thought expedient by the operators to maintain a nicety of adjustment. The best contained, of gold 652, silver 303, and copper 40 parts, in a thousand; the worst, 569 gold, 359 silver, and 72 copper.

The cheat can be detected by removing a portion of the surface, or if this be inadmissible, by specific gravity. But those who are skilled in the appearances of gold, are able to decide at sight, whether the colour is natural or forced. Pickled gold has a coarseness, and want of brilliancy, and partakes of that rich, dull hue, which is called *dead gold*. It is seldom burnished, and if it were, the imposition would still be perceptible.†

Pickling is practised in South America, and no doubt in other parts of the world. Cakes of gold from Valparaiso, apparently nearly fine, sometimes result as low as 600 to 700, the alloy being some ten per cent. copper, and the remainder silver.

Gold in melted cakes (*tejos*) comes from the mines of Western Mexico, Peru, and Chili. These are of all sizes and frequently bear an assayer's stamp, of the fineness in *quilates* or carats, as also of the proportion of silver if it be considerable. They are, in a few cases, from 875 to 900 fine, but generally from 700 downward, in endless variety; the most common rate being near 570.

The most important class of gold bars, is that produced from refineries in Europe; which are received here, partly from London, but chiefly from Paris. They are prepared at private establishments, for commercial purposes, and always bear a stamp, indicating their weight and fineness, by which their value is ascertained. They are thus rendered available for currency, and eminently subserve those trans-

* An intelligent correspondent informs us that "the practice of pickling gold, and alloying it with silver, with a view to defraud, is very common." Those who do it, make no secret of the matter, but justify themselves on the ground that as a manufacturer of broadcloth puts the best finish on his fabrics, so a gold-miner has a right to make his bullion appear to the best possible advantage!

† Another sort of fraud, far more elaborate, was lately detected here, and in its way was one of the greatest curiosities of roguery. From the composition of the metal, the procedure may easily be guessed. A mixture was first made of gold, silver, and copper, nearly in the proportion of the worst alloy above specified. A bar of iron was then suspended in a mould, and the mixed metal, in a state of fusion, was poured all around, so as to conceal the iron, and make it a part of the gold bar issuing from the mould. The gold was about three-eighths of an inch deep, so that a large cutting would be necessary to reach the iron. For such a synthesis, the finish of pickling seemed a necessary consummation.

actions which require large specie payments. The assays of English bars are made by a government officer; those of France by private assayers, who are nevertheless accredited by diplomas from the mint. After very many trials here, it is found that these bars (like the coin of those countries) fall short, on an average, one thousandth part in fineness. The extremes are from 980 to 992, and the average is 995; so that they are properly enough styled, in commerce, fine gold. As to size, the British bars are about 180 ounces each, while those of France vary from 25 to 650, the average being near 300. An opportunity is thus given to pay, in a solid and single piece, any amount from 500 to 13,000 dollars.*

The shape of these bars is an oblong solid, or parallelopipedon, a little tapering at the sides, and in such dimensions that the length is twice the breadth, and the breadth twice the thickness.† The metal is homogeneous, and no attempt at deception has been discovered.

Having thus noticed the various forms of unwrought gold, it remains to speak of that metal in its manufactured state; which will comprehend *jewelry* and *coin*.

1. JEWELRY.

It is obvious that the value of trinkets is to be estimated by the skill and labour expended upon them, as well as by the intrinsic worth of the metal of which they are composed. Consequently, it can only be in the event of their becoming damaged, or growing out of fashion, or in some such rigorous emergency of the times as the community is now enduring, that the sacrifice can be borne of sending them to the mint as mere bullion.

To enumerate the various articles of use and fancy which are brought to the mint, often in grotesque confusion, would almost be to give an inventory of a jeweller's stock. Thus from American or European shops, there are all the equipments of a watch, from the case to the key; pins, buttons, rings, pendants, cups, and chains. From South America, the ornaments are principally chains for the neck; from Africa, twisted rings, of native manufacture.

Our attention must first be given to the home manufacture. After many assays, both of parcels and of individual pieces, it is manifest that there is a great diversity of fineness. Taking the range of *parcels*, the assay varies from 400 to 800 thousandths; or 9½ to 19 carats; but the more usual scope is from 500 to 600 thousandths, say 12

* A considerable part of the French indemnity was paid in this form. The first bars were received in September 1834, directly after the law was passed reducing our gold coin. From that date to September 1838, four years, there were upwards of six hundred bars deposited at the mint, the aggregate value of which was about \$3,500,000. None have since been received.

† A bar of fine gold, measuring six inches long, three wide, and one and a half thick, would weigh 275 ounces, which is near the medium size. Such a bar would be worth about 5900 dollars.

to 14 carats. The variation is about the same in individual articles; but for better satisfaction, the following table is given as a fair specimen.

ASSAY OF SUNDRY ARTICLES OF AMERICAN JEWELRY.

| DESCRIPTION. | RANGE OF FINENESS. | | VALUE PER DWT. |
|--|--------------------|-------------------------------------|-------------------|
| | IN THOUS. | IN CARATS. | |
| Ladies' neck chains, very elaborate; from 50 to 52 inches long, and weighing from 16 to 50 dwts.; of a fine gold colour, and ductile } | 500 to 562 | 12 to $13\frac{1}{2}$ | CTS. 51 to 58 |
| One gentleman's chain, small bars and links, elegant pattern; 51 inches; 17 dwts.; good colour . . . } | 580 | $13\frac{15}{16}$ | 60 |
| One ditto, curb-chain style, 12 dwts.; pale | 646 | $15\frac{1}{2}$ | 67 |
| Gentlemen's watch-chains, for the fob, about 9 inches long; $12\frac{1}{2}$ to 24 dwts.; highly wrought; good col'r } | 310 to 502 | $7\frac{7}{8}$ to 12 | 32 to 51 |
| Finger-rings, 12 to 24 grains; rather coppery colour | 296 to 550 | $7\frac{1}{2}$ to $13\frac{3}{16}$ | 31 to 57 |
| Ear-pendants, highly wrought, and fine gold colour; weighing $4\frac{1}{2}$ to 6 dwts. per pair } | 560 to 588 | $13\frac{7}{16}$ to $14\frac{1}{8}$ | 58 to 61 |
| Scissors-holders, 3 to 4 dwts. each; good colour | 555 | $13\frac{5}{16}$ | 58 |
| Pencil-case, chased; thickness of the metal in the cylinder, $\frac{1}{8}\frac{1}{8}$ of an inch;* imperfect } | 400 | $9\frac{1}{2}$ | 41 |
| Breast-pins, and buttons for the bosoms and sleeves | 595 to 613 | $14\frac{1}{4}$ to $14\frac{3}{4}$ | 61 to 64 |
| Case of a gentleman's watch; chased, and thick | 754 | $18\frac{1}{8}$ | 78 |
| Case of a lady's watch, very thin | 747 | $17\frac{7}{8}$ | 77 |
| Small locket, with enamel work | 761 | $18\frac{1}{4}$ | 78 |
| Thimble, much worn, and coppery colour | 302 | $7\frac{1}{4}$ | 31 |
| Masonic trinket, $2\frac{1}{2}$ dwts. | 486 | $11\frac{10}{16}$ | 49 |
| Old-fashioned watch-seal; 3 dwts.; reddish | 621 | $14\frac{1}{4}\frac{3}{8}$ | 63 |
| Old-fashioned watch-chain; 28 dwts.; reddish | 674 | $16\frac{3}{16}$ | 70 |
| Old-fashioned watch-key, square plate, chased† | 642 | $15\frac{7}{16}$ | 66 |

* This is the thickness of common letter-paper.

† Besides the foregoing articles, there were some, found in the same parcels, which we cannot insert in the table as "fair specimens." For example, there were six watch-seals, of new style, variegated gold, and highly wrought, weighing (without the stones) 5 to 7 dwts. each; they were found to consist chiefly of solder overlaid with gold, the proportion of the latter being only 38 thousandths, or *less than one carat*. There was also a watch-key, of good exterior, which resulted only 58 thousandths of gold, or $1\frac{1}{2}$ carats. Also, a lady's neck-chain, 51 inches long, and weighing 36 dwts., the assay of which was less than 3 carats.

It has not been decided, (that we know of,) how far gold may be alloyed, and yet retain its honourable name. In coinage, it is seldom reduced below seven-eighths, or 21 carats. In jewelry, which is to be exposed to incessant wear, such as a watch-case or pencil-case, 18 carats is considered a good proportion, though it is probable that 16 carats will keep in colour well enough. For ornamental articles, not meant to be much handled, 14 carats seems to be sufficient, if the alloy be both silver and copper, in judicious proportion. But below this, it is hardly possible that trinkets can endure for any length of time, without becoming tarnished.

In some countries the quality of wrought gold is controlled by law, and it is necessary to submit the articles to an assay, under the authority of government.* For example :

In Great Britain, the standards are 22 and 18 carats, or 916·7 and 750 thousandths ; the latter being chiefly used.

In France, 920, 840, and 750 thousandths ; or $22\frac{1}{6}$, $20\frac{1}{3}$, and 18 carats ; the latter almost entirely used.

In Austria, $18\frac{1}{2}$, $13\frac{1}{2}$, and $7\frac{1}{2}$ carats. The last is about to be disallowed.

In Mexico, 20 carats. But lower proportions may be used, in which case there is no official guarantee or stamp.

In the United States there are no legal provisions, nor, we believe, any standards agreed upon amongst manufacturers.

Jewelry undergoes a prodigious, though unsteady, loss in melting. This is partly owing to the many exterior cavities, in which dirt collects, but much more to the presence of solder, which, besides its use as a cement, often serves as an interior support for the gold. In some articles there is little occasion for the use of solder ; in others it abounds. Consequently, while one parcel may not lose more than one per cent. in the crucible, another will lose fifty per cent., or half its weight.† These extremes have repeatedly been observed here. The usual loss is from 4 to 16 per cent.

The trinkets sent from Spanish America do not essentially differ from our own in purity. An ear-ring, lately assayed, was 513 thousandths ($12\frac{1}{4}$ carats) fine ; a chain, handsomely wrought, and weighing $42\frac{1}{2}$ dwts., proved only 468 thousandths ($11\frac{1}{4}$ carats) fine. In general, the variation is from 500 to 750 ; or 12 to 18 carats.

The richest ornaments, so far as the quality of the gold is concerned, are those worn by the negroes of Western Africa. Considerable quantities of *twisted rings*, which are doubtless meant for personal decoration, find their way to this mint, as bullion. These rings are apparently thus made ; the gold is beaten into a square rod, two or three inches long, which is twisted until it forms a screw ; the ends are

* The same is the case with silver plate, as will be shown farther on.

† This great loss is partly owing to the necessity of refining with nitre.

then smoothed, tapered to a point, and brought together, forming a ring. The ductility of the metal readily admits of these contortions. It is evident that these are wrought from native gold, without artificial mixture; silver, the natural alloy, being always and only present. There is much difference in the fineness, the range being from 845 to 960 thousandths ($20\frac{1}{4}$ to 23 carats), although the usual scope is narrower, and the average may be safely set down at 930 thousandths, or $22\frac{1}{4}$ carats. The rings of inferior quality may be known by being somewhat brittle, and not allowing so fine a twist as the better sort. In weight, they are adapted to the means of all classes of wearers: we have noticed the extremes of $6\frac{1}{2}$ grains and 26 dwts.; which, in cash, would be from 26 cents to 26 dollars. About 5 to 10 dwts. is a common size.

Solder is not used in these articles, and consequently the loss in melting is very trifling.

2. COINED GOLD.

In the former part of this work, the character of individual species of coin has been stated at large. When foreign coins are brought in masses to be converted into our currency, they are considered only as bullion, and are received by weight.

The kinds of gold coin received at the mint, in a large way, are those of England, France, Netherlands, the northern parts of Germany, and the republics of Mexico and Colombia. All others come in small quantities, or rather are found here and there, in mixed parcels.

Coined metal is (unless perfectly new) encumbered with an accretion of dirt and dust, which of course disappears in melting. By experimenting in a large way, it is found that an allowance of three-tenths of an ounce per thousand ounces must be made on this account, for gold coin.

This branch of the subject should not be dismissed without noticing emissions of coin by individuals, not in the way of counterfeiting, but without authority of law.

In our own country, the only private coinage worth stating, consists of gold pieces, emanating from the gold region. The establishments for this purpose have been, that of *Templeton Reid*, in Georgia, now discontinued; and that of *Christopher Bechtler*, in North Carolina, still in operation.

In the year 1830, when gold began to be extensively raised in Georgia, the project was set on foot of coining it, so to speak, "at the pit's mouth." Three denominations of coin, ten, five, and two and a half dollars, were struck, bearing the name of "Templeton Reid, Assayer," and the designation "Georgia Gold." On two occasions they were brought to this mint in quantities, but not since 1831. They were soon discontinued, and probably by this time are nearly forgotten, even at home. The following is the weight, assay, and value of two kinds; the five dollar piece has not been tried.

| | WEIGHT. GRS. | FINESS. THOUS. | VALUE. D. C. |
|---|-----------------|-------------------|-----------------|
| Piece of ten dollars* | 248 | 942 | 10 06 |
| Piece of two and a half dollars | 60·5 | 932 | 2 43 |

Mr. Bechtler's mint, which is located at Rutherfordton, North Carolina, is of much greater importance. Its operations were commenced in 1831, and are still carried on,† although there is a Branch Mint of the United States less than eighty miles distant. The coins circulate freely at the South and West, but are scarcely known north of Washington. They are frequently deposited here for recoinage.

To obtain a proper understanding of them will require some attention. There are two series; the first bearing no date, but issued earlier than 1834, of the three denominations of five, two and a half, and one dollar, professedly 20 carats fine, and 150 grains to the piece of five dollars. These are now scarce. The second series is that which bears the date of 1834. In that year there was an important reduction of standards in the national gold coins, to which Mr. Bechtler conformed, and by way of distinction has used the uniform date of that year. The denominations are as before, but there are three grades of fineness and weight; thus at 20 carats, the five dollar piece is to weigh 140 grains, the same at 21 carats, to weigh 134 grains, and at 22 carats, to weigh 128 grains.‡ The pieces of 20 carats are stamped "North Carolina gold," those of 21 "Carolina gold," and those of 22 "Georgia gold." It is probable that all of the gold is raised in North Carolina, and that these stamps are only to assist in indicating the different qualities, as they are generally understood in that region; Georgia gold being usually the best, and North Carolina the poorest.

The coins bear no emblematical device, but simply the name and residence of the manufacturer, the weight and fineness, and the designation just stated.

The following is the result of numerous trials of these coins at this mint.

* It is to be observed that our eagle of that date would *now* be worth \$10 66. It *then* commanded a premium of 5 per cent.; that is, it was worth \$10 50 in silver. If Mr. Reid's ten dollar piece was current without premium, his gain was about 44 cents, or near 4½ per cent. It may have brought more in market.

† Mr. Bechtler has stated the amount of his coinage to February 1840 (nine years), at \$2,241,840.

‡ The calculations are not strict. These three pieces, at their rates, would be worth, by the law of 1834, \$5 02½, 5 04⅔, and 5 05, respectively.

| DENOMINATION. | Profess'd weight. | Professed fineness. | | Average weight. | Average fineness. | Average value. | Value per dwt. | Variations in fineness. | Variations in value. |
|---------------------------------------|-------------------|---------------------|-----------|-----------------|-------------------|----------------|----------------|-------------------------|----------------------|
| | | In Carats. | In Thous. | | | | | | |
| | Grs. | | | Grs. | Thous. | D. C. M. | C. M. | Thous. | |
| Five dollar piece, } before 1834 } | 150 | 20 | 833 | 148 | 838 | 5 34 | 86 6 | 829 to 846 | \$5 28 to \$5 39 |
| Do. since 1834, } "N. C. gold" } | 140 | 20 | 833 | 139·8 | 815 | 4 90 7 | 84 2 | 813 to 819 | 4 89 to 4 93 |
| Do. "Carolina gold" | 134 | 21 | 875 | 134·4 | 845 | 4 89 | 87 3 | 833 to 852 | 4 82 to 4 93 |
| Do. "Georgia gold" | 128 | 22 | 917 | 127·6 | 882 | 4 84 6 | 91 2 | 856 to 899 | 4 70 to 4 94 |
| 2½ "N. C. gold" | 70 | 20 | 833 | 70 | 819 | 2 47 | 84 6 | | |
| Do. "Georgia gold" | 64 | 22 | 917 | 63·6 | 872 | 2 39 | 90 1 | | |
| One doll. "N. C." | 28 | 20 | 833 | 27·6 | 810 | 96 2 | 83 7 | 804 to 816 | 95½ to 97 cts. |

There is not much variation in the weight, but the fineness (as shown above) is exceedingly irregular and inferior, causing an average loss of $2\frac{1}{2}$ per cent. on the nominal value.* A safe estimate of the value of single five dollar pieces, taken "as they come," would be \$4 84.†

The present Director of the Mint, in his report to Congress for the year 1840, after a brief statement in relation to Mr. Bechtler's coinage, observed: "It seems strange that the privilege of coining copper should be carefully confined by law to the general government, while that of coining gold and silver, though withheld from the States, is freely permitted to individuals, with the single restriction, that they must not imitate the coinage established by law."

SILVER BULLION.

This branch of the subject will require fewer subdivisions than the preceding. In an unwrought state, silver is brought to the mint either in *amalgam*, or *melted bars and cakes*; in a manufactured form, it appears as *plate* or *coin*. These four items will sufficiently distinguish all the varieties of silver bullion.

* It is stated that Mr. Bechtler charges $2\frac{1}{2}$ to 3 per cent. for the manufacture. This agrees very well with the average deficiency.

† Same as the British sovereign.

1. AMALGAMATED SILVER, OR PLATAPINA.

This form of bullion, which is common to both the metals, has been accounted for in describing gold amalgam. Silver in such a state is usually designated by the Spanish term *plata pina*, or cone-shaped silver. Most of it bears that configuration pretty nearly, and might, at a distance, be mistaken for loaf-sugar. Sometimes it is compressed into the form of a wedge, cylinder, or globe; more rarely, it is fancifully shaped into diminutive towers, images, and the like.

Bullion of this kind comes from the western ports of North and South America, and forms a considerable share of our coining material.

The most remarkable difference between the platapina of Mexico, and that of Peru and Chili, is, that the former invariably contains a minute proportion of gold, sometimes enough to extract; while the latter is not only free from gold, but usually is accompanied with a small portion of the native sulphuret of silver.* The same fact is observed of bars and cakes from the same countries, the sulphuret not being reduced to metal at the first melting.

Experiments have been made here to ascertain how much *water* may be concealed in platapina, owing to its sponge-like texture. Pieces of various dimensions were heated to redness, to free them from moisture, and their dry weight taken; they were then soaked in water two or three days, and reweighed; from which it was found, that in one case the absorption was 11 per cent., in another 15, and in a third 20 per cent. of the weight of the mass. Here there is great room for unfair dealing, since a pretty well-soaked lump may appear dry on the outside, and if it is sold by weight, a good deal of water will be estimated as silver. The specific gravity of platapina is from 4 to 5; consequently, it is about $2\frac{1}{2}$ times more bulky than when melted. The usual range of purity, and of loss in melting, will be shown in a table.

2. MELTED BARS AND CAKES.

Silver bullion which has been melted, appears in a variety of shapes. If it has been cast in a large oblong mould, and weighs several hundred ounces, (from 300 to 1600 is the usual scope,) it is called a *bar* or *pig*; if it is from a small slender mould, and weighs 30 to 50 ounces, it is called an *ingot*; if it has not been cast, but allowed to cool in the test-dish of the refinery, it is a *test-bottom*; if it has cooled in the crucible, it is called a *king*, or if very small a *button*. Silver in these various forms is

* This is insoluble in nitric acid, and therefore presents an embarrassment in the humid assay; indeed, the only one we have had to encounter. M. Gay-Lussac, the inventor of this admirable process, mentions other obstructions, but appears not to have experienced this one. When it occurs, we rely mainly on cupellation.

sometimes of an inferior standard, especially if it be a melting of plate; but generally, bars and cakes are of a high grade of fineness. They are chiefly imported here from the same regions which send amalgam. They frequently bear the Spanish stamps of weight and fineness.

A silver bar or cake ought to be of uniform fineness throughout its mass. But this is not always the case; and where the melting has been rudely done, a remelt is made here before the assay is taken.

There are some frauds to be guarded against, in this sort of bullion. *Pickling* (already spoken of) is scarcely available; but sometimes an iron bar is detected in the bowels of a silver one; and in one instance, pigs of silver were brought to the mint, in each of which there were two very different qualities of metal, the better sort of course being on the outside.*

3. SILVER PLATE.

The plate received at this mint is partly from Spanish America, and partly from our own workshops; on rare occasions, there are articles presented of English, French, and German fabrication.

In many countries there are legal standards for the fineness of plate, some of which will be noticed before any detail is given of actual assays.

In England wrought silver is 925 thousandths, the same as the coin. Articles capable of bearing a stamp are marked with a *lion*, the initials of the maker's name, the mark of the assay office, and a letter for the date. The mark of the Goldsmiths' Office is a leopard's head; the office at Dublin, a harp; at Edinburgh, a thistle; at Sheffield, a crown; at Birmingham, an anchor; at Newcastle, three castles. The letter used by the Goldsmiths' Company shows the date by beginning the alphabet with 1817, and reckoning on to twenty letters progressively; thus 1820 is known by the letter D. When the duty is paid, the article is further marked with the King's head.†

In France there are two standards: 950 and 800 thousandths.‡ The former is probably most used.

* The particulars of this case are worth stating. The deposit consisted of two bars, or pigs. Being too heavy for the beam then in use, they were cut in two. The cut surface showed that the metal was of considerably lower quality at the centre than at the outside; and the layers were so distinct as to prove that the dissimilarity was not accidental. Before they were melted, assays were taken from the interior and exterior of each bar, and the result was as follows: First bar (2012 ounces), exterior, 964 thousandths—interior, 881. Second bar (2200 ounces), exterior, 970—interior, 920. After a thorough melting and mixing, the first bar resulted 949, the second 962. If the two had been as pure throughout as they were on the outside, they would have been worth \$5268; as it was, they yielded \$5206, which was a loss of 12 per cent. to the buyer, though but a small profit to the knavish melter for his pains.

† Kelly's Cambist.

‡ Ibid.

In Austria the two standards are 15 and 13 *loths*, or 938 and 813 thousandths. A change is about to be made, substituting the single standard of 900 thousandths.*

In Prussia there is no legal regulation, but the manufacture of plate is controlled by the Corporation of Goldsmiths, so as to insure some conformity to the standard of 750 thousandths fine.† This proportion is also used in other parts of Germany, particularly at Hamburg.

In Mexico the legal fineness is 11 *dineros*, or 917 thousandths. This proportion is not compulsory, and manufacturers may make whatever alloy they please; but in such case there is a distinction in the mode of stamping. The mark called *diezmo* (tenth) consists of an *eagle*, and the initial letter of the place where the duty is paid, which only proves that payment has been made. The stamp of the *quinto* (fifth) has, in addition to the marks of the *diezmo*, those of the assayer and the manufacturer, and indicates that the metal is of lawful standard.‡

In the United States there exists no legal provision; but it is generally understood that plate is of the same fineness as our coin, as it is probably made therefrom, in a great measure.

Actual assays of plate, the loss in melting, and the value per ounce, will be stated in the ensuing table.

4. COINED SILVER.

This branch of the subject having already been discussed, we shall only remark, that foreign coins constitute the larger part of the material used in minting operations here. The kinds most frequently presented are those of Mexico, Peru, Bolivia, France, Prussia, and the old crowns of the Austrian Low Countries. The coins of other countries appear in much smaller amount, and usually in miscellaneous parcels.

Silver coins are generally much more soiled by circulation than the gold. The usual loss in melting is 17 dwts. upon a thousand ounces, which is three-fourths of an ounce upon a thousand Mexican dollars.

* Letter of J. G. Schwarz, Esq., U. S. Consul at Vienna.

† Letter of his Excellency Henry Wheaton, U. S. Envoy at Berlin.

‡ Letter of Don Bernardo Gonzalez, Superintendent of the Mint of Mexico.

TABLE OF THE FINENESS OF THE PRECEDING DESCRIPTIONS OF BULLION, LOSS IN MELTING, AND VALUE PER OUNCE.

| DESCRIPTION. | RANGE OF FINENESS. THOUS. | AVERAGE FINENESS. THOUS. | LOSS IN MELTING, PER CENT. | VAL. PER TROY OZ. BEFORE MELTING. CENTS. | AV. VAL. PER OZ. AFTER MELTING. CENTS. |
|----------------------------|---------------------------------|--------------------------------|----------------------------------|--|--|
| Plata pina | 970 to 999 | 990 | 2 to 5 | 120 to 125 | 125 to 129 |
| Pigs and test-bottoms . . | 930 to 995 | 985 | $\frac{1}{10}$ to $\frac{9}{10}$ | 119 to 127 | 120 to 128 |
| Plate:* English . . . | 924 to 936 | 925 | $\frac{2}{10}$ to 2 | 119 | 119.5 |
| French | 945 to 950 | 946 | do. | 121.5 | 122.2 |
| German (Hamburg, &c.) | 738 to 760 | 750 | do. | 96.5 | 97 |
| Romish | (one parcel) | 890 | do. | 114.5 | 115 |
| Mexican† | 600 to 920 | 830 | do. | 106 | 107 |
| South American, generally, | 670 to 900 | 830 | do. | 106 | 107 |
| Chilian | 840 to 960 | 880 | do. | 113 | 114 |
| United States . . . | 875 to 900 | 890 | do. | 112 to 115 | 113 to 116 |

MIXED BULLION.

In the native state, gold is invariably accompanied with a proportion of silver, and silver, in most cases, contains more or less gold. These metals are not difficult to separate, though the operation requires skill and labour, and is attended with some expense. Whenever the cost of parting is greater than the metal to be extracted will repay, it is allowed to remain, especially in the case of silver containing gold. Until within a few years it was rare to find a silver coin which did not contain from one-half to two thousandths, but since the recent improvements in parting, it has been an extensive and profitable business in France to dissolve the old crowns and other coins, for the sake of the modicum of gold contained in them.‡ French silver coins are now commonly free from gold.

* We have deducted one-half to one cent per ounce from plate before melting. If the articles contain much solder, as coffee-urns, cups, &c., this deduction is necessary, but spoons, forks, and the like may be rated at the valuation in the last column.

† A satisfactory average of Mexican and South American plate can hardly be stated. The working of silver is well understood in those countries, and plate of a low fineness is made to look very well.

‡ The method referred to is the *parting by sulphuric acid*, introduced in Paris in 1826, after plans proposed by M. D'Arcet, Director of Assays at the mint. The principal refinery is that of M. Poizat. The tariff of charges under this process is complicated, being adjusted to various stages of alloy, but the cheapness of the operation may be judged

Mixed bullion is technically of two sorts ; *goldish silver*, where the silver predominates, and *silvery gold*, in the opposite case.

1. GOLDISH SILVER is chiefly received from the west of Mexico, and in cakes bearing the stamp of an assay. The proportions are very various, but often the mixture is nearly in equal parts. Silver bullion is always assayed for gold here, and depositors sometimes receive a return in the latter metal without expecting it. The charge for parting is four cents per ounce of metal operated on.

The silver derived from the mine recently opened in Davidson County, North Carolina, contains about two-thirds of one per cent. of gold, a proportion which well repays the cost of separating. Deposits from this mine were first received in the autumn of 1841, and the enterprise, which is one of much interest to this country, gives promise of ultimate success.*

2. SILVERY GOLD, such as will admit of parting, is chiefly brought to this mint from North Carolina, Western Mexico, and Colombia. The charge for separating is twelve cents per ounce of the bullion treated. Generally, bullion containing less than 15 per cent. of silver is not parted for the depositor, unless brought in considerable amount, say of a hundred ounces or upwards ; in any case, the result must yield five dollars after all expenses, or else it is not reported.

of from the fact that one millieme or thousandth of gold, in a silver coin, will pay for its extraction. But the erection of a refinery upon this plan is so expensive, and so much *material* is required to keep it profitably employed, that it has not been established in the United States. At the mint the old process by nitric acid is used, but the charges are so narrowed down to the bare cost of labour and materials, that no importer would find it worth his while to send mixed bullion across the ocean to be parted. The lowest proportion of gold parted from silver here is $2\frac{1}{2}$ thousandths, or one-fourth of one per cent. (See D'Arcet's Instruction, 1827, and other pamphlets published in Paris ; also report of Dr. Patterson, Director of the Mint, to the Senate, April 27, 1842.)

* The ore from this mine is an argentiferous carbonate of lead, yielding about one-third its weight in pure metal, from which is afterwards extracted from 100 to 400 ounces of silver per ton. The amount brought to the mint thus far, is about \$5000.

CHAPTER IV.

COUNTERFEIT COINS.

A coin is *genuine* which has been issued under the regulation and authority of law ; a *counterfeit* coin is an imitation of the genuine, struck without legal authority.

Counterfeit coins are almost always of inferior composition and value, and are fabricated for the purpose of imposing them upon the public as genuine, and gaining the difference. We say *almost* universally, for there have been instances in which the false money was fully equal in value to the true. How this could happen may be illustrated by a case which occurred in 1828 in Tunis. A coinage of new piastres was effected under the direction of the Bey, and on account of his government. Their real value was about fourteen cents, but the decree made them current at five piastres to the Spanish dollar ; at which rate the Bey reaped the enormous profit of more than forty per cent. Such a speculation would naturally create competition ; and accordingly, piastres of similar impressions, weight, and value were fabricated in Europe, and found their way to Tunis, where they entered into the circulation, and procured for their makers a division of the spoil. The enterprise, both on the part of the Bey and of the counterfeiters, was necessarily soon at an end, and the piastres fell to their intrinsic value.—Some years ago the base silver money of Hayti was imitated by artists in this country, for a speculation similar to that upon Tunisian currency. This is not the place to discuss the question of the morality of issuing a counterfeit which is in all respects equal to the genuine coin : but the absurdity and impolicy of affixing an enhanced value upon a piece of money by mere force of law, is sufficiently shown by the foregoing incidents.

It is not so easy as one would suppose, to make the distinction between that which is, and that which is not, to be stigmatized as *counterfeiting*. What are we to think, when the *sovereign power* in a state suddenly and secretly debases the coinage ? Such a thing could not happen where the laws are openly promulgated, as in our own country, and most others. But there are realms where the operations of the mint are state secrets ; in one of these, the coins might be issued in December at nine-tenths fine, and in January of the new year it might all at once be reduced to seven-eighths. None would be the wiser, until, perhaps, some mint-assayer in another land (who will

take nothing for granted) finds out the fraud. In the meantime, the government, setting itself as an antagonist to its own people, reaps an enormous gain, of which the future reaction is no dissuasive against the present temptation.*

Once more it is to be remarked, that a coin may be struck without legal authority, and below legal value, and yet be no counterfeit. Such is the case with the gold pieces of Mr. Bechtler, now and for some years past coined in North Carolina. They are slightly under value, and are recognised by no law; yet they are no *imitations* of the national currency, and therefore not to be classed with spurious money. Their issue is not, though it might be made, unlawful.

Counterfeiting the lawful coin has ever been regarded as a highly criminal offence, and been forbidden by the severest penalties. Among the ancient Egyptians the punishment was cutting off both the hands. By the Roman civil law, counterfeiters were thrown to wild beasts. The Emperor Tacitus made it a capital crime, with forfeiture of property; and Constantine declared it to be treason.† In Great Britain the forgery of coin is a felony, punishable with death; but the penalty is usually commuted for transportation, or long imprisonment. In the United States the Act of Congress provides, that if any person shall counterfeit any coin in the resemblance of the gold or silver coin struck at the mint, or in the resemblance of any foreign coin made current by law, or shall pass the same, or shall import it with such intention, he shall be deemed guilty of felony, and shall be punished with fine not exceeding five thousand dollars, and imprisonment at hard labour not exceeding ten years. For the like offences against our copper coin, the penalty is limited to one thousand dollars fine, and three years' imprisonment.‡

As for the antiquity of this practice, we venture little in assuming that it is nearly

* The case has recently happened in Bolivia and South Peru, where halves and quarters of a dollar have been coined at one-fourth less value than their face purports. (See those articles.) But besides this instance, it will be curious to cite some facts which occurred in France in the thirteenth century. Philip of Valois, who reigned from 1328 to 1350, in his last year ordered a coinage of *double-tournois*, at the reduced and very base proportion of 185 thousandths fine. In his mandate to the officers of the mint, this precautionary passage occurs: "On the oath which you have made to the King, keep the thing as secret as possible. Take care that the workmen shall neither know nor suspect any thing of it; for if it transpires through your means, you shall be punished in such a manner as will be an example to all others." His successor, John II., in the very next year, issued a coinage of silver *blancs*, which were to be 375, instead of 500 thousandths fine. His direction ran thus: "Keep the thing secret; and if any one ask what is the alloy of the blancs, *pretend* that they are of six deniers." At the same time the gold *royals* were secretly reduced from 20 to 18 carats, with this injunction: "Cause all the former *royals* to be remelted; and tell the melters (lest they might suspect all was not right) that the chief-melter had neglected to alloy them previously, and therefore it was necessary to remelt." In reciting these facts, the historian observes that these monarchs only followed the example of their predecessor, Philip *le Bel*, who, for his pains in this business, acquired the additional surname of *le-faux-monnoyeur*. Thus Philip the Fair, with an *alias* of Philip the Counterfeiter, if not the originator, may be considered the patron of his profession. Mongez, *Mémoire*, &c.

† Arbutnot on Ancient Coins, &c. p. 8.

‡ Act of March 3, 1825.

coeval with the art of coining. What has just been stated, as to the penalties affixed to the crime in ancient countries, will throw some light upon this point; in addition to which, a passage may be cited from St. Jerome (of the fourth century), who observes that certain grottoes in Egypt had been discovered, containing some rusty anvils and hammers, and that Egyptian writers speak of them as having been the haunts of counterfeiters, about the time of Mark Anthony's visit to Cleopatra.*

The crime is in some countries very prevalent. The statistical tables of Great Britain show that in four years ending with 1837, there were 1130 convictions in England and Wales for counterfeiting and passing counterfeits, of *metallic* money only. In the year last named, the whole number of convictions in the realm was 431; namely, in England 315, in Scotland 36, and in Ireland 80.†

There are no means of ascertaining the extent of this manufacture and traffic in the United States. Prosecutions in this part of the country are not frequent, nor are spurious coins abundant; but in the Southern and Western States the case is different. We read continually of organized hordes of depredators upon the currency, and of the diffusion of "bogus money" throughout the Great Valley of the Mississippi.

The principal object of this chapter is to enable persons to discriminate between true and false coins. The need of such information is felt in various circumstances in life, but the most important are these three :

1. When a doubtful piece of money is offered in some such place as the market, or at a counter, and consequently very little time is afforded to decide upon taking it; in which case, the simplest tests only can be resorted to.
2. Where the piece in question is of a large denomination, and much interest is felt in ascertaining its true character; in such case, more time and pains can be taken.
3. When a person is under suspicion or arrest for the wilful forging or uttering of counterfeit money; or when evidence is to be given on a trial for that crime, before a court. In such case, the common tests may not be sufficient, and resort is to be had to the severest scrutiny.

These three cases will bring under review all the appliances for deciding whether a coin is good or bad. These are easily divisible into three classes, which (for want of a better nomenclature) shall be designated as, I. *The sensible tests*; II. *The mechanical tests*; and III. *The chemical tests*.

Before entering upon these topics, a single remark must be made, though it be a very obvious one, that to be able to use these tests, one must have an acquaintance

* Life of Paul the Hermit, quoted by M. Mongez.

† Tables of Revenue, Population, &c., London, 1839.

with the genuine coin. Any American is familiar enough with the money of his own country and of Spanish America, and he may possess a sufficient knowledge of British and French coin. But how shall he decide upon a Prussian thaler, or an Austrian zwanziger, of which he seldom sees either the true or the false, and which, though genuine, are of as low a fineness as many counterfeit dollars of Mexico and Peru? In such cases the details of weight and fineness, with the aid of the engravings, in the present work, will be of use, though a sight of the real coin is nearly indispensable. The aim of the ensuing remarks must therefore be, to assist any reader, whether American or European, in detecting the counterfeits of those coins with which he is most familiar, and especially those of superior alloys.

I. SENSIBLE TESTS.

The senses of *sight*, *smell*, *hearing*, and *feeling*, are familiar tests of the genuineness of money, and have been relied upon in all ages and countries.* Some particulars will be stated upon these tests individually.

THE SIGHT. This is the most to be depended upon, of the sensible tests. It takes cognizance of three things; the colour of the metal, the workmanship of the coin, and the dimensions, in diameter or thickness.

1. To speak first of gold coin. If the examiner is familiar with the true colour of gold, both pure and alloyed, he will not easily be deceived by any composition which contains no gold, and is not gilded.

But such a counterfeit of gold coin rarely if ever is attempted. A true gold surface must be attained, and this is arrived at in three ways. The first is by introducing a considerable proportion of gold into the alloy, varying from one-fourth to two-thirds, and bringing out the colour by pickling. The second is by gilding. The last is by sawing out the interior of a good coin, and leaving two very thin, but genuine *outside* disks, to be soldered upon a baser body.

In the first of these cases, the colour will be that of fine gold, and if new, rather too good. If the piece is a little worn, the baser metal will discover itself, in prominent places. A doubloon lately fell under suspicion here, partly from that fact; it proved to be only 670, instead of 870 thousandths fine, and therefore a counterfeit, though containing a remarkably generous share of good metal. Genuine gold coins lose their colour somewhat by wear, especially if they are alloyed with copper

* In the writings of Epictetus (who flourished under Nero) the following passage occurs, upon this subject. "As it respects moneys, the banker employs four means of ascertaining their quality; the sight, the touch, the smell, and the sound. He throws down the coin, and observes what sound it gives; and this he repeats several times." The Chinese, who have no gold or silver coins of their own, but deal extensively in foreign money, especially Spanish dollars, are famous for their skill in the use of these tests. Travellers assure us, that an expert money-changer will separate good from bad dollars nearly as fast as he can pass them through his hands.

only, or with silver only ; but the change will not be so manifest as in the case of a counterfeit.

In the next case (gilding) the trick has been effective. A parcel of coins was sent here by a bank, in which a specimen of this kind was detected. It was a half-dollar of 1810, which had been coated with gold, and the "50 C." scraped off, to make it pass for an eagle, for which it was received by the teller of the bank. In another case, a half-dollar of 1801, the reverse of which, as to the impressions, was similar to the eagle, and was gilded ; on the other side, the coin was smoothed off to receive a thin obverse disk from a real eagle, by soldering. It may be censurable to recite such facts, but the danger of indoctrinating others in these laborious and unprofitable rogueries, is less than that of allowing them to go unexposed. Besides, every one who is in the receipt of coin, especially in gold, must habituate himself to give it some examination.

But the cheat of gilding can no longer be practised with effect. Gold and silver coins are now in every country made so palpably different, in the devices or diameters, that such a conversion will, with a little care, necessarily be detected.

In the last of these three instances, the imposture is still more subtle than the preceding. A forty-franc piece was lately brought here, which was faultless to the eye in every respect ; in fact, its outside was genuine, the interior being filled up with a base metal. In this instance, the trials by *sound* and *weight* were necessary to detect the fraud. Sometimes, it is stated, the disks of gold are soldered upon a plate of platinum, to maintain a proper weight and specific gravity, without increasing the thickness.* In this case, not only the sight, but some other tests also, would be unavailable ; still the means of detection would remain. There is little ground, however, to fear a method of counterfeiting which requires great skill and experience, and no small trouble and expense, to make it effectual.

To conclude this point, it is to be remarked, that because a gold coin looks rather too pale, or too red, it is not therefore to be condemned as below standard. The recent French coins are wholly alloyed with copper, and the beautiful colour of gold is thus nearly lost ; still, the hue cannot be mistaken by a practised eye for any thing else than standard gold. On the other hand, those who are familiar with Beechler's coins, of North Carolina, are aware that some of them are so pale as to be almost brassy ; nevertheless, they are of good quality.

We proceed to the judgment of *silver* coins, by colour. The remarks already made, have here a general application. Most persons know what the colour of a silver coin ought to be, and can upon slight examination decide between the real metal (even though dimmed by wear and dirt) and the shabby imitations in pewter, tin, and

* Chaudet, *Art de l'Essayeur*, p. 237. His valuable chapter *De l'Examen des Fausses Monnaies Françaises*, has furnished us with some of the facts and suggestions contained in this article.

German silver. Further, if there be a proportion of silver in the coin, and it be somewhat worn, the dark or brown tint will here and there betray itself. But the sight alone cannot detect coins which have been plated, or which, being partly silver, are nearly new.

2. *Inspection of the workmanship* is a test so severe, that most counterfeits cannot endure it. It is a happy circumstance that the finest artists are generally men of integrity, and cannot be seduced into the illicit arts of forgery. In consequence of this, a counterfeit coin may usually be known by some awkwardness or straggling in the letters, some ugliness about the face of Liberty, or at least, some curl or fold out of place. The very best imitation seen here of American half-dollars, such as would deceive the most wary, may still be known, upon a comparison, by the *wiry* locks of hair. Sometimes an egregious blunder is committed: thus there are spurious dollars of Carolus III., dated some years after the termination of his reign. The gilded *eagle* of 1810, already spoken of, also bore an anachronism on its face, as no eagles were coined from 1805 to 1837.

After all, this test cannot stand alone, since some imitations are exceedingly well executed, and some pieces (as already explained) are genuine on the face, but base at the heart.

3. The *dimensions*, in diameter and thickness, are to be looked to. Here counterfeiters are placed in a dilemma, as will be seen from the following facts. The specific gravity of our gold coin is about 17·3; of the silver, 10·3. Suppose an imitation is made of the half-eagle, one-half gold, one-fourth silver, and one-fourth copper; which would be liberal, if the forger is to make money by his business. The specific gravity of this mixture would be only 12·3; that is, it would be so much lighter than standard gold, that if the counterfeit were no larger than the genuine coin, it could only weigh 95 grains, less by 34 grains than the true weight, and would therefore be exposed to detection, even without a balance. But let us assume that the alloy has been three-fourths gold, and the remainder silver and copper; even this would be (at the proper size) too light by 14 grains. A deficiency of three grains, if the piece were unworn, would render it suspicious; any thing beyond would condemn it.

As the difference in gravity between silver and the inferior metals is much less than between them and gold, the variation, as to counterfeits of silver, is less conspicuous. A forged Mexican dollar, of so high a fineness as 770, would be of the specific gravity of 9·94; and if of the proper size, would weigh 402, instead of 416 grains. A far less deficiency than this would condemn a silver piece, purporting to be of almost any country, except certain states of Spanish America. The irregularity, at some of the mints in Mexico, Peru, Bolivia, and the Argentine Republic is so great, that silver coins, professing to be issued thence, cannot be condemned,

from the single fact of their being several grains too light or too heavy. (See those articles.)

Counterfeit coins are not likely to be too large in diameter; the thickness is more to be suspected. Some of the best counterfeits of our half-eagles are made so thick as to cause suspicion from that fact; notwithstanding, they fall short in weight. Specimens of a recent date, containing a proportion of gold, varied in weight from 108 to 123 grains.

The measurements of our coin are detailed in another place;* but the readiest guage is a comparison with a genuine piece.

THE SMELL is to be noticed as the next test. It applies only to counterfeits of silver, and is even then of limited use. The smell of pure copper, or silvery copper, when warmed by rubbing, is very perceptible; while standard silver gives out no odour. This is always stated among the tests of coin, but is of no great value.

THE SOUND is a more certain criterion. To apply it, the coin should be poised on the tip of the finger, and its edge lightly struck by another coin. (Dropping it upon a stone is not a good method.) The tone of standard gold or silver is sonorous, full, and agreeable. That of baser metal is sometimes shrill and short, sometimes flat and leaden. In this experiment, a genuine coin should always be used for a comparison.

After all, this proof is not greatly to be relied upon. It would be more so, if the practice were universal which is said to be pursued at the London mint, of trying every coin by its *ring*, and allowing none of uncertain sound to go into the circulation.† As it is, pieces occasionally escape from other mints, and our own too, with a slight and often imperceptible flaw, which obstructs the vibration, and deadens the sound. But even a good sonorous piece may be so maltreated, after it leaves the mint, as to become unmusical.

THE TOUCH is the last of the sensible tests. Like that of the smell, it applies only to imitations of silver, and is not much to be depended on. The counterfeits made of pewter, tin, and German silver, have a greasy smoothness to the touch, which real silver (if it be washed clean) has not. Persons whose sense of feeling, as applied to this investigation, has become refined by much practice, may use this test with effect, but not otherwise.

In fine, it is well not to depend upon any one of the foregoing ordeals by the senses. The suspected coin should be tried by all of them: let it be eyed, and handled, and smelt, and rung. From a combination of these testimonies, a just conclusion may in many cases be reached.

* See Appendix.

† Chaudet, p. 280. This and other processes, maintained solely to guard against counterfeiting, are stated to cost the government £7000 annually, in addition to the ordinary mint expenditure.

II. MECHANICAL TESTS.

The instances are not rare, in which a counterfeit is so specious, that all the senses combined can detect nothing amiss, or at furthest, can only raise a suspicion. In such cases some mechanical helps must be called in; those that are commonly relied upon are the six following. 1. Paring, with a knife. 2. Filing into the edge. 3. The touchstone. 4. The balance. 5. The hammer and chisel. 6. Specific gravity. Some observations will be made on these respectively.

1. **PARING, or CUTTING.** Standard gold or silver has a certain consistency, which baser alloys or metals have not; some being harder, others softer. To one who has experience in these differences, the knife is a good test. Moreover, by removing a little of the surface, some inferior metal may be disclosed underneath. But this mode of trial defaces and reduces a coin.

2. **FILING.** This experiment is in favour with the banks; it consists in making a narrow and rather deep incision, with a small file, in the edge of the coin. Like the preceding, it both tests the hardness and exposes the inside. In cases where the counterfeit has a good proportion of precious metal, it is not satisfactory. Besides, it so disfigures the piece, as to render it suspicious ever after.

3. **TOUCHSTONE.** This metallic test, practised in ancient Rome, and perfected in modern France, is famous every where. Unskilled persons would presume that it must be the perfection of assaying; since the very term has by a figure of speech been adopted into ordinary converse, and every thing has its *touchstone*. Notwithstanding, this test requires a vast deal of skill and practice, and some array of apparatus, and after all, is only approximate in its results. It is hardly available for silver, since a difference in fineness of 100 thousandths, or ten per cent., can scarcely be perceived. It is much more in use for gold, and is resorted to for determining the fineness of articles of jewelry, where very little of the metal can be spared, and where much accuracy is not required.

The touchstone, called also *Lydian stone*, from having been first brought from Lydia, in Asia Minor, is now chiefly procured from Austria and Saxony. It is a basaltic stone, nearly black, and of a gritty surface when polished. Its constituent parts are chiefly silex, alumine, and oxide of iron.

This test, it is evident, is not an expedient one for the detection of counterfeits. It is enough to state, that its use is by a comparison with known alloys, of various proportions, prepared for the purpose. These alloys are for convenience joined together, pointing outwards from a common centre, something like the rays of a star, and are called *points* or *needles*; the fineness (in carats) being marked on each. These points are rubbed on the touchstone, and the metal under examination

likewise; upon comparing the colour of the particles lodged upon the stone, the fineness is ascertained. An improved method (invented by Vauquelin) is to prepare an acid, composed of 98 parts nitric at 37 degrees of Baumé, and 2 parts muriatic at 21 degrees; the metal is to be rubbed in several places on the stone, and the needles opposite to each; the mixed acid is then to be dropped on all these markings, and the experimenter must observe where there is the most similarity of effect, and judge accordingly. This improvement properly carries the test into the chemical class; but it is thought best to dispose of the subject in one place.*

4. THE BALANCE. If the reader will recur to what has been said under the item of *Dimension*, as to the embarrassments of counterfeiters in harmonizing true size with true weight, he will perceive the value of the test now proposed. Indeed, for quickness, ease, and certainty, the balance has the preference over any test yet named. Counterfeits of gold coin are always, and of silver almost always, too light; the deficiency being, in large pieces, from five to sixty grains. It is true that the error, especially in imitations of Spanish-American dollars, is sometimes the other way, a few having been noticed of six to twelve grains heavy. It would seem that the apparatus of counterfeiters is not suitable for nice adjustments, or that they cannot afford to take so much pains. Consequently, if any piece under trial (except some of Spanish America, as already stated†) should be light or heavy as much as five grains, in comparison with a genuine coin, and both being unworn, such piece may justly be brought under suspicion; and if other tests seem to concur, it is to be rejected as a forgery.

The trial is very simple. It only requires a beam capable of turning with a grain or two, and some small weights. For want of these latter, the operator may take a slip of lead, and counterpoise it against a new half-dime, which is about $20\frac{1}{2}$ grains; by dividing this slip into quarters, a sufficiently accurate weight of five grains is obtained, which will answer for the purpose in hand.

5. THE HAMMER AND CHISEL. If there is no objection to spoiling the coin, a very good test is to divide it, through the centre, by cutting half through, and then breaking it. A fractured edge shows the composition much better than a smooth cut. If the coin is of standard silver, it will be rather tough in dividing, and the fracture will be a clear white. If it is of base silver, the fracture will be short and brittle, and the colour gray or brown. If the material be of plated copper, tin, or German silver, it will show for itself. This test may also be applied to counterfeits of gold, but not always so satisfactorily.

* More satisfactory details may be found in Chaudet's *Essayeur*, Chapter XIII.

† In some other countries, the mints are careless in adjusting their coins. The instances are pointed out, under the respective heads.

6. SPECIFIC GRAVITY. As this subject is discussed in another place, it is only to be remarked that the process is a sure test of the genuineness of a coin, and deserves to be better understood than it usually is. Any apothecary or watchmaker in town or country can qualify himself, and prepare his balance, to take the specific gravity of solids, and thus be competent to decide in any controversy, in market or at court, upon a piece of money.

III. CHEMICAL TESTS.

The chemical tests are systematic *assays*, by cupellation, for gold, and either by that method or by solution and precipitation, for silver. These processes not only decide whether a coin is good, but what is the actual amount of good metal contained in it. And if it is desired to carry the investigation farther, there are means of ascertaining the entire composition of the piece; what metals enter into it, and in what proportion. This latter treatment is called an *analysis*.

To do justice to this subject, would require a treatise on assaying, which would be out of place, and unnecessary. Whenever a coin has been subjected to the tests already stated, and there is still a doubt, to be cleared up before a court and jury, (and a rare case it will be,)* a sample of the suspected money should be referred to a practical chemist, and sufficient time given to make satisfactory experiments.

There is a process, however, for silver coin, which is easy enough for any ingenious person, and offers an interesting train of experiments. All the apparatus and materials required would be, a balance sensible to half a grain, with correct weights; a few eight-ounce glass phials; aqua fortis, or nitric acid; common salt; and some coarse unsized paper for filtering.†

* The following curious case, which occurred at Nashville, Tennessee, early in 1829, is worth preserving. A Kentuckian, named Banton, was brought before the committing magistrates, on a charge of passing counterfeit Spanish and Mexican dollars. The pieces had been cut at the bank, and pronounced by the teller to be forgeries; in which judgment several silversmiths concurred. On the examination, the same artisans testified that they had tried the dollars by *pickling and rolling*, and agreed that they were of good silver. They were sent out, however, to try another experiment, and returned with the decision that the pieces were spurious, but contained some silver. A gentleman of science (as the newspaper states) was next called on, to test the coins in presence of the magistrates, "by the most approved processes used by chemists," and determined them to be as pure as the Spanish dollar. The counsel for the prisoner now moved for his discharge; but the judges, not free from doubt, resolved upon one more trial. They adjourned for a few days, and in the mean time sent some specimens to Dr. Troost, Professor of Chemistry in the University of Nashville. At the next hearing, that gentleman presented the results of eight experiments, by solution and precipitation. The coins were found to contain various proportions of silver, from 22 to 63 per cent.; while a genuine piece, assayed in their company, gave 89 per cent. The accused was then bound over for trial. (Nashville Republican, January 1829.)

† It will be understood that we are not writing for the *scientific*, but for the *general* reader. The former would expect us to be more technical and exact.

Two objects are supposed to be in view ; first, to know if the coin is genuine, and secondly, how much silver it contains.

For these purposes, have the suspected piece, or a sufficient portion of it, cut into bits, by the aid of a smith's tools, and weigh therefrom fifty grains. In like manner, obtain the same quantity of a genuine coin. Put these doses into separate bottles ; pour into each about 400 grains of weak nitric acid ;* place each bottle in a cup, containing water, and expose them to moderate heat. The *genuine* specimen will dissolve, not quickly, but completely ; the other, if base, will be more violently attacked, but perhaps not entirely dissolved, without the addition of more acid. The process of solution, will, in most cases, of itself decide the character of the suspected coin. When this operation is finished, the liquid should be transparent ; if it is not, and a milky precipitate floats in it, this is an indication that tin is present,† which is never found in a good coin ; and as the further search for silver will be somewhat intricate, and generally useless,‡ the experiment may here be arrested. But if the liquid is clear, pour in a strong solution of common salt, about as much in bulk as the acid used, and add water until the bottles are half full ; then shake them briskly for two or three minutes, which will cause the precipitate to subside. Hold the bottles up to the light, and observe the colour of the fluids. Both will be blue, from the presence of copper ; but if one of the samples is counterfeit, it will be decidedly darker than the genuine.

Proceeding now to ascertain *how much* silver is in the coin, prepare two other bottles, with funnels, and place a double fold of filtering paper (previously weighed) in each funnel. Pour on these filters the whole of the respective liquors, with their precipitated silver. When the liquid has entirely passed through, take off the filters, on which will be lodged all the silver, in a state of *chloride*. Having thoroughly dried them, finish the operation by weighing. After deducting the weight of the paper, the genuine specimen should give 60 grains, if it was of our standard silver ; a grain or two, more or less, must be allowed for want of accuracy. Deduct one-fourth for chlorine, and the remainder, of 45 grains, will be the amount of pure silver ; that is, nine-tenths of the original weight. As for the other specimen, if it be a counterfeit, the weight (deducting the filter) cannot exceed 50 grains ; and ordinarily it will not be more than 25. In any case, deduct, as above, one-fourth, and the residue is the metallic silver present.

Annexed is a table of counterfeits, selected from about 150 varieties.

* One hundred and fifty grains of nitric acid at 25° Baumé, would be just sufficient to dissolve fifty grains of a standard coin, if brought to boiling heat. It is thought better for beginners to use more acid, and less heat.

† Or it may indicate that the acid is impure, containing muriatic, which has precipitated some silver ; to ascertain this, observe whether the *genuine* specimen is clear or not. If it is not, the acid is unfit for the experiment.

‡ A tin counterfeit seldom contains silver.

TABLE, SHOWING THE CHARACTER OF VARIOUS SPECIMENS OF COUNTERFEIT COIN, TRIED AT THE ASSAY DEPARTMENT OF THE MINT OF THE UNITED STATES.*

GOLD.

| DENOMINATION. | DATE. | COMPOSITION. | EXTERNAL CHARACTERS. | | | WEIGHT. | SP. GR. | FINE- NESS. | VAL. OF FINE METAL IN THE PIECE. | |
|----------------------|------------|----------------------------|----------------------|--------------|-----------|------------|---------|----------------|--|-------|
| | | | Colour. | Workmanship. | Sound. | | | | Thous. | p. c. |
| United States eagle | 1801 | Silver, with gold surface. | Pale gold. | Genuine. | Dull. | 179 | 10·7 | | 44 | |
| do. | 1810 | do. | Pale gold. | Genuine. | Sonorous. | 204 | 10·3 | | 50 | |
| Half-eagle . . | 1835 | Gold, silver, and copper. | Good. | Passable. | Sharp. | 108 to 123 | | 440 | | |
| Doubloon of Colombia | Not noted. | Silver, gilt. | Pale gold. | Good. | Good. | 342 | 10·3 | | | |
| do. Spanish . | 1787 | Gold, silver, and copper. | Good. | A cast.† | Good. | 368 | 14·1 | | | |
| do. do. . | 1818 | do. | Good. | Good. | . . . | 393 | 10·8 | | | |
| do. La Plata | 1826 | do. | Good. | Passable. | . . . | 386 | 14·3 | | | |
| Escudo, of Colombia | 1828 | do. | Brassy. | Good. | . . . | 46 | 12·9 | 510 | 1 00 | |
| do. do. | 1835 | do. | Good. | Not good. | . . . | 36 | 11·4 | 257 | 39 | |
| Forty francs, France | 1824 | Not ascertained. | Genuine.‡ | Genuine. | Dull. | 171 | 11·4 | | | |
| Half-joes, Portugal | 1761-99 | Gold, silver, and copper. | Perfect. | Perfect. | Sonorous. | 108 to 171 | | 880 | | |

* The *legal* weight, fineness, and value, of the corresponding *genuine* coins, is to be found under the various heads of *United States, Spain, France, &c.*, which see.

† Gold and silver counterfeits which are produced by casting, from a mould, may be known by the obtuse and incomplete aspect of the impressions. Those metals, or alloys containing them, always shrink a little in cooling, so that it is impossible to get the *sharp* relief produced by stamping.

‡ The distinction intended between "genuine" and "perfect" is, that the former has actually the *oussides* of a coin made at the mint; the latter is the perfection of imitation.

SILVER.

| DENOMINATION. | DATE. | COMPOSITION. | EXTERNAL CHARACTERS. | | | WEIGHT. | SP. GR. | FINE- NESS. | VAL. OF FINE METAL IN THE PIECE. |
|-------------------------------------|-----------|---------------------------|----------------------|--------------|------------|-------------|---------|----------------|--|
| | | | Colour. | Workmanship. | Sound. | | | | |
| U. S. half-dollar. | 1823-25 | Silver and other metals. | Perfect. | Very good. | Very good. | 200 to 211 | 9-2 | 375 | 20 |
| do. | Various. | German silver. | Dusky. | Tolerable. | Sharp. | 193 to 203 | 8-7 | | |
| do. | 1833 | Silver, copper, and zinc. | Very good. | Good. | . . . | 208 | | 300 | 17 |
| Spanish dollar | 1805 | Silver and copper. | Very good. | A cast. | Very good. | 386 | 10-1 | 770 | 80 |
| do. | 1805 | do. | Good. | Good. | . . . | 362 | 9-8 | 650 | 63 |
| do. | 1821 | Silver and other metals. | Good. | Good. | . . . | 429 | | 400 | 46 |
| do. | 1796 | do. | Good. | Good. | Not good. | 418 | 9-1 | 310 | 35 |
| do. | 1781-1804 | Copper, thickly plated. | Perfect. | Very good. | Good. | 363 to 425 | 9-0 | 160 | 17 |
| do. | 1796-1807 | "Tin, silvered. | Good. | Good. | Tolerable. | 344 to 357 | 7-4 | 30 | 3 |
| do. | 1794-1824 | Silver and copper. | Good. | Passable. | . . . | 353 to 388 | 10-0 | 740 | 73 |
| Mexican dollar, } Durango mint } | 1832-37 | Silver and other metals. | Perfect. | Perfect. | Good. | 374 to 408 | | 330 | 34 |
| do. of Guanaxuato | 1833 | Silver and copper. | Good. | Not good. | . . . | 402 | 9-8 | 610 | 79 |
| do. various mints | 1824-34 | Silver and other metals. | Good. | Tolerable. | Good. | Average 400 | 9-8 | 640 | 69 |
| Peruvian dollar, } Lima mint } | 1834-38 | Silver and copper. | Good. | Very good. | Good. | 375 to 450 | 9-9 | 700 | 75 |
| Bolivian dollar | 1838-39 | do. | Good. | Very good. | Tolerable. | 326 to 388 | 9-5 | 490 | 46 |
| Spanish quarter-dollar | 1782-1822 | Silver and other metals. | Passable. | Good. | Good. | 76 to 107 | 9-1-9-6 | | |
| U. S. do. | 1838 | Chiefly tin. | Bluish. | A cast. | Dull. | 76 | 7-2 | | |

CHAPTER V.

SPECIFIC GRAVITY OF GOLD AND SILVER.

FOR the sake of such readers as have given no attention to the subject of specific gravities, a prefatory remark or two may be offered. They are reminded that there is a great difference in the *weightiness* of different substances; that a solid inch of gold is heavier than the same bulk of silver, and still heavier than iron, and so forth. This relation of gravity may be ascertained, so as to be expressed by figures, minutely and accurately. The usual measure of comparison for solids is pure water, at a temperature of 60° to 65° Fahrenheit; this being estimated as 1, pure silver is found to be $10\frac{1}{2}$ times as heavy, that is, its specific gravity is 10.50, as that of pure gold is 19.30.

This comparison of gravities is of so much importance that it goes very far towards identifying any particular substance; and in respect to the precious metals is of this further use, that it will decide, with considerable accuracy, their degree of purity. It is, indeed, a far less delicate test than the assay, and would be inadmissible for minting operations; but it possesses these advantages, that it does not injure or diminish the article to be tried,* and requires very little time for the examination.

The whole operation is simply this. The coin, bar, or other matter to be tested, is to be weighed, first in air, and then in water. Taking the difference as a divisor, and the first weight as a dividend, the quotient will be the specific gravity of the article. Suppose the weight in air to be 5000 grains, and the weight in water 4727.5, the difference will be 272.5; 5000 divided by this will give the quotient,

* This condition is believed to have given origin to the operation, which was discovered by the celebrated geometrician Archimedes of Syracuse, (who flourished about the year 250 B. C.,) on the following occasion. The King, who had entrusted a quantity of pure gold with an artist, to be wrought into a crown, suspected that the article had been alloyed with silver in the making, and gave it as a problem to his philosophers to decide the matter, without injuring the fabric. Archimedes, going to bathe, observed that as he got into the full tub, the water ran over; and the idea was suggested that the amount of water thus spilt must be equal in bulk to his own body, and if it were weighed against himself, would show the comparative gravity, bulk for bulk. Applying this to the King's case, he perceived that, the weight of the crown being determined, its bulk ought to be no greater than a certain dimension; if it exceeded, there was proof that silver had been added. By plunging the diadem in water, he ascertained its bulk, and without the least injury to the delicate workmanship, detected the fraud of the manufacturer. His method of finding the gravity has been improved upon, as is shown above.

or specific gravity of 13.36. This operation is founded on the hydrostatic fact, that the apparent loss of weight of the solid examined, is equal to the weight of its own volume of water.

No one need be deterred from this experiment by the fear of being lost in an intricate maze. It is entirely within the reach of every miner, broker, jeweller, or other dealer in precious metals, and should be familiar to them all. All that is necessary, is so to arrange an ordinary balance, that one stirrup with its dish can be taken off, and a human or horsehair suspended in its place, having one or more loops at the lower end in which to secure the bar, coin or trinket to be tried. One horsehair will bear three or four ounces; if a larger weight is required, a stout silk thread may be used. Dealers should have beams of sizes suited to their business; for example, a miner in our gold region, who has cast his bullion into a small ingot, will need a balance which will bear a weight of two pounds or more; a broker or jeweller will require one which would be loaded at one ounce. Nor need these be very delicate; if the former turns with three grains, and the latter with one-quarter of a grain, it will suffice for the purpose in hand. The operator therefore, having removed one of the stirrups, and substituted a hair, must equipoise the beam by placing something, say a piece of sheet-lead, on that arm which has been lightened. Having washed the article with soap and water, he is to place it in the loops securely, and weigh it in the air; let it then hang in a vessel of rain-water, so that it shall be entirely submerged, and shall not touch the vessel. The weight will now be found less than it was before; the difference, whatever it may be, will be the divisor, as already explained. The whole operation need not consume more than five minutes.*

The specific gravity of any given alloy of gold or silver having thus been obtained, an important point remains, to know what degree of fineness it indicates. This cannot be ascertained by any calculation, based upon the known gravities of the pure metals. For example, fine gold has a gravity of 19.30, and fine silver 10.50; but the gravity of a mixture containing half gold and half silver would be 13.60, and not 14.90, the result by arithmetic. The reason of this is that the metals expand in the process of combination, and so reduce the specific gravity.

It follows then, that there must be a series of experiments upon known alloys, the results of which are to be referred to as a standard of comparison. We have never yet been able to meet with such results, except of a few stages of alloy, and those not always satisfactory. To supply this manifest deficiency, has been not the least arduous labour connected with the present publication. The ensuing tables are

* An excellent instrument for taking specific gravities of solids was invented some years ago by Dr. Isaac Hays of this city, but was never brought into common use. It is upon the steelyard principle, and the gravity is ascertained by a graduation on the beam. Mr. Saxton has recently made a beautiful instrument of this kind. It shortens the process, and is very simple.

the fruit of numerous and careful trials,* and we believe may be depended upon. The apparatus used, consisted of two beams, one of which bears a weight of two pounds troy in each dish, and is sensible to the one-hundredth of a grain; for the other, the largest weight was ten grammes (154 grains), and the smallest, one-tenth of a milligramme, or $\frac{1}{700}$ of a grain. The alloys were carefully prepared from pure gold, silver, and copper, of the weight of five to ten grammes, though in some cases the amount was much larger. The temperature was about 65° Fahrenheit. In all the cases except that of gold alloyed with silver and copper, there are two columns of specific gravities, first from *casting*, and next from *hammering*; in the excepted case, the difference was found so small, as not to be worth noting.

TABLE OF THE SPECIFIC GRAVITY OF GOLD, AT DIFFERENT GRADES OF FINENESS, AND VARIOUSLY ALLOYED.

| FINENESS. THOUS. | ALLOYED WITH SILVER. | | ALLOYED WITH COPPER. | | ALLOYED WITH SILVER AND COPPER IN EQUAL PARTS. |
|---------------------|----------------------|-----------|----------------------|-----------|--|
| | Cast. | Hammered. | Cast. | Hammered. | Cast or hammered. |
| 500 | 13.60 | 13.68 | 12.05 | 12.10 | 12.84 |
| 510 | 13.68 | 13.77 | 12.15 | 12.20 | 12.92 |
| 520 | 13.76 | 13.86 | 12.25 | 12.30 | 13.00 |
| 530 | 13.84 | 13.95 | 12.35 | 12.41 | 13.08 |
| 540 | 13.92 | 14.03 | 12.44 | 12.51 | 13.16 |
| 550 | 14.00 | 14.11 | 12.54 | 12.62 | 13.25 |
| 560 | 14.09 | 14.20 | 12.64 | 12.70 | 13.33 |
| 570 | 14.18 | 14.28 | 12.73 | 12.80 | 13.43 |
| 580 | 14.27 | 14.36 | 12.83 | 12.90 | 13.54 |
| 590 | 14.36 | 14.45 | 12.92 | 13.00 | 13.64 |
| 600 | 14.45 | 14.54 | 13.00 | 13.12 | 13.75 |
| 610 | 14.54 | 14.63 | 13.11 | 13.24 | 13.85 |
| 620 | 14.64 | 14.72 | 13.22 | 13.36 | 13.95 |
| 630 | 14.74 | 14.81 | 13.34 | 13.46 | 14.06 |
| 640 | 14.84 | 14.90 | 13.46 | 13.58 | 14.17 |
| 650 | 14.94 | 15.00 | 13.60 | 13.70 | 14.28 |

* About two hundred and thirty experiments were made, and wholly from synthetic alloys, many of which were afterwards assayed for confirmation of their correctness.

TABLE OF THE SPECIFIC GRAVITY OF GOLD (CONTINUED).

| FINENESS. THOUS. | ALLOYED WITH SILVER. | | ALLOYED WITH COPPER. | | ALLOYED WITH SILVER AND COPPER IN EQUAL PARTS. |
|---------------------|----------------------|-----------|----------------------|-----------|--|
| | Cast. | Hammered. | Cast. | Hammered. | Cast or hammered. |
| 660 | 15.04 | 15.08 | 13.70 | 13.80 | 14.38 |
| 670 | 15.15 | 15.18 | 13.80 | 13.90 | 14.49 |
| 680 | 15.26 | 15.29 | 13.90 | 14.00 | 14.60 |
| 690 | 15.37 | 15.41 | 14.00 | 14.11 | 14.70 |
| 700 | 15.48 | 15.53 | 14.10 | 14.21 | 14.80 |
| 710 | 15.59 | 15.64 | 14.20 | 14.33 | 14.91 |
| 720 | 15.70 | 15.75 | 14.40 | 14.47 | 15.02 |
| 730 | 15.81 | 15.85 | 14.50 | 14.60 | 15.13 |
| 740 | 15.91 | 15.96 | 14.66 | 14.74 | 15.25 |
| 750 | 16.02 | 16.08 | 14.78 | 14.88 | 15.37 |
| 760 | 16.12 | 16.18 | 14.90 | 15.02 | 15.50 |
| 770 | 16.25 | 16.29 | 15.00 | 15.16 | 15.64 |
| 780 | 16.36 | 16.40 | 15.10 | 15.21 | 15.78 |
| 790 | 16.51 | 16.53 | 15.20 | 15.36 | 15.92 |
| 800 | 16.63 | 16.65 | 15.40 | 15.52 | 16.05 |
| 810 | 16.78 | 16.78 | 15.47 | 15.67 | 16.18 |
| 820 | 16.88 | 16.90 | 15.56 | 15.82 | 16.31 |
| 830 | 17.00 | 17.02 | 15.76 | 15.97 | 16.44 |
| 840 | 17.11 | 17.12 | 15.96 | 16.13 | 16.58 |
| 850 | 17.23 | 17.25 | 16.10 | 16.29 | 16.72 |
| 860 | 17.34 | 17.38 | 16.25 | 16.45 | 16.86 |
| 870 | 17.48 | 17.51 | 16.47 | 16.62 | 17.01 |
| 880 | 17.60 | 17.64 | 16.55 | 16.79 | 17.16 |
| 890 | 17.74 | 17.78 | 16.92 | 16.98 | 17.32 |
| 900 | 17.90 | 17.92 | 17.20 | 17.20 | 17.48 |
| 910 | 18.03 | 18.06 | 17.32 | 17.35 | 17.64 |
| 920 | 18.13 | 18.20 | 17.46 | 17.54 | 17.80 |
| 930 | 18.30 | 18.34 | 17.61 | 17.73 | 17.97 |

TABLE OF THE SPECIFIC GRAVITY OF GOLD (CONTINUED).

| FINENESS. THOUS. | ALLOYED WITH SILVER. | | ALLOYED WITH COPPER. | | ALLOYED WITH SILVER AND COPPER IN EQUAL PARTS. |
|---------------------|----------------------|-----------|----------------------|-----------|--|
| | Cast. | Hammered. | Cast. | Hammered. | Cast or hammered. |
| 940 | 18.43 | 18.46 | 17.79 | 17.93 | 18.14 |
| 950 | 18.57 | 18.66 | 18.14 | 18.13 | 18.32 |
| 960 | 18.72 | 18.76 | 18.35 | 18.34 | 18.51 |
| 970 | 18.87 | 18.90 | 18.56 | 18.65 | 18.70 |
| 980 | 19.00 | 19.08 | 18.68 | 18.86 | 18.90 |
| 990 | 19.14 | 19.21 | 19.06 | 19.08 | 19.10 |
| 1000 | 19.30 | 19.30 | 19.30 | 19.30 | 19.30 |

To use this table effectively, the operator must carefully observe what his gold is alloyed with ; since an article 750 thousandths (18 carats) fine, may show the specific gravities of 14.78 to 16.08 ; or on the other hand, an article whose specific gravity is 14.78, may be from 632 to 750 thousandths fine, which is a prodigious variation, and depends entirely upon the alloy. A miner of our gold region, who has cast native metal into a bar, is to be guided by the first column, as he will not be embarrassed by copper alloy. There is this caution to be observed, however, with gold from our southern states ; that if it contains tin, as it often does, the metal will be crystallized or brittle, and the fineness will be about 20 thousandths higher than the table indicates. For example, if the specific gravity of a bar has been found to be 17.74, and a little piece of it has proved very fragile in cutting or hammering, the fineness will be, not 890, but about 910.

But suppose the articles consist of coin, or jewelry ; they are almost certain to be alloyed both with silver and copper, and in very variable proportion. The specific gravity of such an article is to be sought under the head of *hammered*. Take for example a twenty-franc piece of France, of late date, and its specific gravity will be found very near 17.20 ; but take another of the type of Napoleon (in whose time silver was used in the alloy) and it will vary from 17.30 to 17.70 ; so that, if the fineness were to be judged only from specific gravity, there would be the large scope of 855 to 930 thousandths. In such cases, the eye must aid in the determination. A person of some experience can tell from the colour, whether the coin is wholly alloyed with silver or with copper, or whether it has about one-half, or one-third, of either of those metals. To give some instances. The operator has three ten-thaler pieces of Brunswick, the fineness of which is known to be about 896. Their specific gravities we

will suppose, have resulted 17·12, 17·28, and 17·40. Now upon inspection of their colour, he will see such a manifest difference in the shade, as to account for these considerable variations; and if he would avoid serious error, he must always take this into the account. In the first instance, the mixture would be about 896 gold, 14 silver, and 90 copper; in the second, 896 gold, 34 silver, 70 copper; in the third 896 gold, 50 silver, and 50 copper.

After all, it is evident that only an approximate result can be obtained, though in general, the error will not be greater than one per cent., or a quarter of a carat. But even this will be of signal use to commercial dealers, and perhaps as accurate as they would wish. It offers a sure means of detecting counterfeits, and pickled bars.

We proceed to offer a table of silver, alloyed with copper. Here the difference between fine and half-fine is so much less than in the former table, that it is impracticable to come to a closer gradation than by 50 thousandths, or five per cent.

TABLE OF THE SPECIFIC GRAVITY OF SILVER AT DIFFERENT GRADES OF FINENESS,
ALLOYED WITH COPPER.

| FINENESS. THOUS. | CAST. | HAMMERED. | FINENESS. THOUS. | CAST. | HAMMERED. |
|---------------------|-------|-----------|---------------------|-------|-----------|
| 500 | 9·50 | 9·64 | 800 | 10·08 | 10·14 |
| 550 | 9·62 | 9·71 | 850 | 10·08 | 10·20 |
| 600 | 9·50 | 9·80 | 900 | 10·24 | 10·30 |
| 650 | 9·85 | 9·88 | 950 | 10·31 | 10·40 |
| 700 | 9·96 | 9·96 | 1000 | 10·50 | 10·55 |
| 750 | 10·05 | 10·05 | | | |

Some general observations may properly be offered, upon the results in the foregoing tables.

1. The specific gravities are in a certain progression; and if it were not for incidental and unavoidable variations in the experiments, it is probable they would be found to follow an exact mathematical law.

2. The specific gravity of cast metal is never so uniform as that of hammered, since the former may contain minute cavities, external or internal. This is especially obvious in the silver table, where there appears little difference, in a fineness of 750 to 850.

3. Notwithstanding all the pains that can be taken, the same alloy will often produce varying results, to the extent of five or six, in the second place of decimals. To carry results to the third decimal is an idle refinement.

CHAPTER VI.

DESCRIPTION OF THE PLATES.

THE original plan of this work did not include illustrations by engravings. This was felt as a serious deficiency, since a treatise on coins, which does not present a picture of them, is but half fitted for its purposes. There was, however, no choice left ; for, not to speak of the difficulty of procuring an artist willing to undertake the task,* the expenses of engravings executed by the usual methods, whether on metal or wood, would have made the price of the book three times as much as that which is to be put upon it, and would therefore have lifted it out of the reach of most purchasers. Under such circumstances, the authors proceeded with their labours, hoping in some measure to supply the want of engraved copies by *descriptions* of the coins.

Much progress had not been made, before a turn was given to the enterprise, by which the object, before so hopeless, was placed within reach. There was a process of engraving, yet new to the world, by which coins, medals, and other bas-reliefs could be copied, with comparatively little labour and expense, and so accurately as to present a fac-simile. What is more remarkable, this was a process *by machinery* ; and of so great ingenuity, that it is gratifying to affirm that it was invented and perfected by Americans, and (if we may be allowed to show some *esprit de corps*) artists connected with this institution. Upon referring the matter to one of these gentlemen, he kindly undertook the serious task of preparing a suite of engravings, which, as will be seen, comprises a front view of the Mint of the United States in the title page, and sixteen plates (which find their place in this chapter) comprising about two hundred specimens of coin. By the aid of these, the reader will be able to identify almost any coin now current in the world. He will doubtless also be gratified with the faithfulness, and the striking effect of these pictures ; but it will add to his interest in them, to understand something of the principles of the mechanism by which they have been accomplished.

It is not difficult to imagine an arrangement of machinery such that while one point is tracing a line across the face of a medal, rising and falling according to the eleva-

* There is something about this sort of work which makes engravers particularly repugnant to it. A very able artist declared to us that he would not have undertaken it on any consideration.

tions and depressions over which it passes, another point shall draw, on a flat surface, a profile of this line. If now the tracer be made to move successively in a series of parallel and equidistant planes, over the whole surface of the medal, there will be thus drawn a series of profiles corresponding to the sections of these planes with the surface of the medal, and these lines will together form a drawing or engraving of the medal itself.

Such an instrument was invented and executed, in 1817, by Mr. Christian Gobrecht, a native of Pennsylvania, now engraver of the Mint of the United States. In this instrument the "tracing-point" moved across the medal in parallel planes perpendicular to the flat surface or "table" of the medal, and the profile lines were drawn on an etching ground laid on copper or steel, by the "etching-point." The first engraving made was of a head of the Emperor Alexander, and the effect was very striking, and excited great attention. An instrument constructed chiefly on Mr. Gobrecht's plan by Mr. Asa Spencer, of this city, was put in operation by him in London, in 1819; and thus this art may be justly said to have been first introduced into Europe. It is true that the general principle of the medal-ruling machine is included in that ancient invention the rose-lathe, and that an imperfect attempt was made by M. Bergeron, in Paris, in 1816, to engrave on copper by this lathe, and by a corresponding instrument which he calls the "machine carré." But the whole history of the art of medal-ruling, as now practised, shows that it had its origin in the invention of Mr. Gobrecht.

In this instrument, each of the parallel sections, in which the tracing-point successively moves, would, if continued, cross the flat table of the medal in a straight line, which may be called the base-line of that section. Now if the tracing-point describe this base-line itself, the etching-point will describe a corresponding cross-line, also straight. But when the tracing-point rises, as in practice, above the base, the etching-point will deviate from the cross-line by a distance either equal or proportional to this elevation. Two consequences follow from this arrangement. The first is that when the profiles of two consecutive lines passed over by the tracer are drawn, the more the second traced line rises above the first, the closer will the second etched line approach to the first, and *vice versa*. Hence the etching of the side of the medal, along which the tracing-point ascends in its successive passages, will have its lines closer together, and that of the side along which the tracing-point descends will have its lines farther apart; and these distances will be greater or less according as the ascents or descents are more or less steep. It is this circumstance that produces the shading, and makes the series of profile lines exhibit a representation of the medal. But a second consequence of the arrangement of the instrument is, that points which are in the same cross-section of the medal are not represented in the corresponding cross-line of the engraving, but deviate more from it as the points of the medal are

higher. This gives rise to a distortion of the features, not, indeed, very perceptible in copies from medals in low relief, but from those in high relief quite offensive.

This defect, which is inherent in Mr. Gobrecht's instrument, and glaringly apparent in the engraved plate of M. Bergeron, requires, for its removal, an essential modification in the process of medal-ruling. The change consists, first, in causing the tracing-point to describe the intersections of the surface of the medal in planes, not, as before, perpendicular to the table, but forming an oblique angle with it,—and the angle heretofore chosen is one of 45° . It will follow that, on the ascending side of the medal, these intersections will be near to one another, and more near the steeper the ascent,—while on the descending side, the reverse will occur; so that the lines in question would themselves, if marked, form a shading on the surface of the medal.

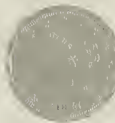
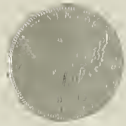
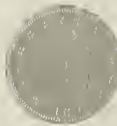
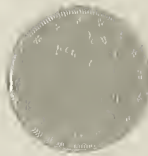
Now a little reflection will show that if these lines were projected, by perpendiculars drawn from them at every point, upon the flat table of the medal supposed to be continued across it, there would be drawn upon this plane a representation of the medal itself, properly defined and shaded, and without the least distortion. But in order that the ruling-machine may etch out a true copy of this imaginary drawing, it is only necessary that a mechanical arrangement be adopted, such that the etching-point shall always move forward and backward over a distance equal to the horizontal projection of the distance described by the tracing-point in its diagonal movements over the face of the medal. For this purpose, the oblique movement of the tracing-point must be to the horizontal movement of the etching-point, as the hypotenuse of a right-angled triangle is to its base, when the angle at the base is equal to that which the tracing planes make with the table of the medal. It has been supposed and asserted that, to avoid distortion, this angle must be one of 45° ; but this is evidently not a necessary condition. The less the angle in question, the greater will be the contrast between the lights and shadows of the engraving; but it must not be so small as that of the slopes of the medal on the side along which the tracing sections descend, or these slopes will not be touched by the tracing-point.

The ingenious device described above,—the originality of which cannot be contested,—is due to Mr. Joseph Saxton, a native of Pennsylvania, now attached to the Mint, who first executed it, in London, in 1829.

The last ruling-machine of Mr. Saxton's construction (made for the purpose of effecting these engravings) has the steam engine for its motive power. In consequence of this difficult and admirable arrangement, not only the irksome manual labour, heretofore necessary, but even personal attendance, is dispensed with; so that the machine, once set in motion, will do all its work, and stop when it is done, though its master should be at other business, or abroad. The quickness of its execution is another striking feature of this apparatus; one disk of a coin, an inch in diameter, requires about half an hour, which, considering that the number of lines

Pl. I.

A circular silver coin, likely a 1795 Liberty Cap coin, featuring a laurel wreath border. The word "LIBERTY" is inscribed along the top edge, and the year "1795" is at the bottom. The center of the coin is plain, with some minor wear and a small mark visible.



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traced is two hundred to the inch, must be owned as a rapidity quite in keeping with the age.

But the reader is not yet apprised of the whole array of modern art which has been pressed into service. These copies could not be taken immediately from the coins, because the picture would then be reversed, and the legends would read backwards. It was therefore necessary to obtain impressions of them, and these must be in metal, and that hard enough to bear the tracer. We must then have been at a loss, except for the seasonable invention of the *electrotype*, of M. Jacobi. By this apparatus, a coin suspended in an electro-galvanic battery, with certain adjustments not to be described here, gradually becomes coated with copper, which, when removed in a solid cake, present as complete a counterpart to the coin, as if produced from the die, under a coining-press. Copies of all the coins were first taken in this way, and from these the rulings were made. It may be added, that the finest specimens of coin, belonging to the cabinet of the Mint, were at our command for this purpose.

To obtain the vignette of the Mint (which is in the title page), as there was no medallion to rule from, it was required to go back to the original; and this necessity brought into play another brilliant invention of modern times, the *daguerreotype*. A picture of the edifice was taken with this instrument by Mr. Saxton, from which a copy was engraved in soft metal by Mr. Gobrecht; from this copy, a counterpart was obtained in copper by the electrotype, and therefrom the engraving was effected. This view is therefore commended to the reader, not only as a faithful and beautiful transcript of the original, but as combining in its production, three discoveries which adorn the present age, the *daguerreotype*, *electrotype*, and *machine-engraving*.

In concluding this statement, it is but just to say, that as a great deal depends upon the laying of the etching-ground for ruling, and upon the *biting-in* of the lines ruled, we were greatly favoured in procuring the services of Mr. J. W. Steel, a well-known artist of this city, and singularly qualified for this branch of the engraving art.*

PLATE I.

GOLD COINS OF THE UNITED STATES.

1. Eagle, or ten dollars, 1795-96.

Obverse. Female head, clothed with the liberty-cap; 15 stars around the border; legend, *LIBERTY*.
Date.

Reverse. An eagle, holding in its beak a laurel chaplet, and in its talons a palm branch; legend, *UNITED STATES OF AMERICA*.

2. Eagle, 1797 to 1804.

Obverse. As in No. 1; with 16 stars.

Reverse. An eagle, (larger than the above) bearing a shield on its breast; in its beak, a scroll, with the motto, *E PLURIBUS UNUM*—"out of many states one nation." One talon grasps a bundle of arrows, the other, a laurel branch. Over the eagle's head, clouds, and 13 stars. Legend, *UNITED STATES OF AMERICA*.

3, 4. Half eagles, corresponding to 1 and 2.

5. Half eagle, 1808 to 1834.

Obverse. Female head, in a dress of the fashion

* After the plates are finished, and in the best manner, their effect may yet be marred by inattention or want of skill in the copper-plate printer; indeed, printing from such plates is a distinct branch of the trade. We take pleasure in affixing the imprint of Mr. D. Stevens, of this city.

of 1808; on the band, *LIBERTY*, on the border, 13 stars, and date.

Reverse. An eagle, with shield, &c. Instead of the clouds and stars, a scroll, with *E PLURIBUS UNUM*. Legend, *UNITED STATES OF AMERICA*.

6. Half eagle, under the law of 1834. 1834-36.

Obverse. Female head, uncovered; the locks confined by a band, with the motto *LIBERTY*. Date, and 13 stars.

Reverse. As No. 5, but without *E PLURIBUS UNUM*.

7. Quarter eagle, corresponding to No. 6.

8. Eagle, under the law of 1837. 1838-42. (No eagles were coined from 1805 to 1837, both dates inclusive.)

Obverse. Female head, new device; 13 stars and date.

Reverse. Eagle, as above; legend, *UNITED STATES OF AMERICA*. *TEN D.*

9. 10. Half and quarter eagle, corresponding to No. 8.

PLATE II.

SILVER COINS OF THE UNITED STATES.

1. Dollar, 1794-95.

Obverse. Female head, with loose tresses; the motto *LIBERTY* over it, and 15 stars around the border. Date.

Reverse. An eagle, surmounted by a wreath. Legend, *UNITED STATES OF AMERICA*.

2. Dollar, 1795-96.

Obverse. Female head and bust; the hair secured by a band, the knot of which is seen behind. Motto, &c., as above.

Reverse. As in No. 1; but the eagle is smaller, and the talons rest on clouds.

3. Dollar, 1797-1805. The head as in No. 2; the reverse, same as on the eagle of like date.

4. Half dollar, corresponding to No. 3.

5. Half dollar, 1808-36. *Obverse* and *reverse*, as the half eagle.

In 1831, the scroll and motto *E PLURIBUS UNUM* were removed from the quarter dollar; and in 1837, from the half dollar.

No dollars were coined from 1806 to 1835. In 1836, one thousand pieces were struck, bearing on the reverse a *flying eagle*. This device was not continued.

6. Half dollar of 1837-38.

On this coin appears *HALF DOL.* instead of 50 C., and the edge, which formerly bore the words *Fifty cents or half a dollar*, is reeded.

7. Dollar, 1837-42.

Obverse. Female figure at full length, seated on a rock, and holding a shield, on which is inscribed the word *LIBERTY*; in the other hand, a staff and liberty cap. Date, and 13 stars.

Reverse. As on the half dollar, with slight modifications.

8. 9. 10. 11. Half dollar, dime, half dime and quarter dollar.

12. 13. Dime and half dime, of 1837, without stars.

PLATE III.

1. Doubloon of Mexico, 1824-40. Value, \$15 53.

Obverse. *LA LIBERTAD EN LA LEY.* 8 E. Mo. 21 Qs. 1825. *Liberty in (or according to) Law.* 8 Escudos. *Mexico mint.* 21 Carats.

Reverse. *REPUBLICA MEXICANA.* *Mexican Republic.*

2. Dollar of Mexico, under the Emperor Augustin Iturbide, 1822-23.

Obverse. *AUGUSTINUS DEI PROVIDENTIA.* *Augustin, by the Providence of God.*

Reverse. *MEX. IMPERATOR CONSTITUT.* 8 R. *Constitutional Emperor of Mexico.* 8 Ricals.

3. Dollar of the Republic of Mexico, 1823-41.

Obverse. 8 R. Pi. 1829. J. S. 10 D. 20 G. 8 Reals. *Potosi mint.* J. S. (*Assayer's initials.*) 10 dineros, 20 granos fine.

Reverse. As in No. 1. Some of the early dollars had a side view of the eagle, with the beak turned downwards. They were called *agachados*. (See *Mexico*.)

4. Dollar of Central America, 1824-36.

Obverse. *LIBRE CRESCA FECUNDO.* N. G. 10 D. 20 G. *In freedom may it be fruitful.* *New Guatemala, &c.*

Reverse. *REPUBLICA DEL CENTRO DE AMERICA.* *Republic of Central America.* In the gold coin, the sun is directly above the volcanos; in the silver, it is setting behind them.

5. Half doubloon of Ecuador, formerly a state of Colombia. Value \$7 60.



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UNITED STATES.
SILVER.

PL II.







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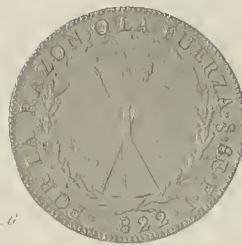




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6-6



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7-6



8-8



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4-5



9-6



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10-5







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2. S



2. S



7. S



3. S



8. S



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10. S



APPENDIX IV

1. *History of Pers.* 182-187. *W. H. D. R.*
 2. *See Pers.* 182-187. *W. H. D. R.*



Obverse. EL PODER EN LA CONSTITUCION. 21 Qs. 1836. 4 E. *The power in the constitution.* 21 carats. 4 escudos.

Reverse. REPUBLICA DEL ECUADOR. QUITO.

6. Doubloon of Colombia, 1823-36. Value \$15 39.

Obverse. REPUBLICA DE COLOMBIA.

Reverse. POPAYAN. *Popayan mint.* Others have BOGOTA, for the mint at that place; they are worth \$15 61. (See Colombia.)

7. Doubloon of New Granada, formerly part of Colombia, 1837-38. Value \$15 61.

Reverse. DIEZ Y SEIS PESOS. BOGOTA. *Sixteen dollars.* Bogota.

8. Old base dollar of Colombia. The reverse omitted, for want of space.

9. Dollar of Colombia, 1835-36. Value 102 cents.

Reverse. LIBERTAD. BA. COLOMBIANO OCHO REALES. *Liberty.* Bogota. *Eight reals of Colombia.*

10. New base dollar of New Granada, 1839. Value 65 cents.

Reverse. VALE OCHO REALES. LEI OCHO DINEROS. BOGOTA. *Value eight reals. Eight dineros fine.* Bogota mint.

PLATE IV.

1. Doubloon of Peru, 1826-37. Value \$15 55.

Obverse. FIRME Y FELIZ POR LA UNION. *Firm and happy through the union.*

Reverse. REPUBLICA PERUANA. M. 8 E. *Republic of Peru.* Lima mint. 8 escudos.

2. Early dollar of Peru. 101 cents.

Obverse. POR LA VIRTUD Y LA JUSTICIA. *By virtue and justice.*

Reverse. PERU LIBRE. M. 8 R. *Free Peru.* Lima mint. 8 reals.

3. Dollar of North Peru. 101 cents.

Obverse. As in No 1.

Reverse. EST. NOR. PERUANO. M. 8 R. *State of North Peru.* The devices are the same as the Peruvian dollar before the partition, except the legend, which was REPUBLICA PERUANA.

4. Dollar of South Peru. 100·8 cents.

Obverse. REPUB. SUD. PERUANA. CUZCO, 1838. *Republic of South Peru.* Cuzco mint.

Reverse. FIRME POR LA UNION. 10 D. 20 G. CONFEDERACION.

5. Quarter dollar of Peru, Lima mint. 25 cents.

6. Old doubloon of Chili, 1819-34. Value \$15 57.

Obverse. ESTADO DE CHILE, CONSTIT. INDEPENDIENTE. A. D. 1818. *State of Chili, with an independent constitution.* The date is the year of the constitution, not of the coin.

Reverse. POR LA RAZON, O LA FUERZA. 8 E. 1822. *By reason, or by force.*

7. New doubloon of Chili, since 1835. Value \$15 66.

Obverse. REPUBLICA DE CHILE. S°. 1836. *Republic of Chili.* Santiago mint.

Reverse. IGUALDAD ANTE LA LEI. 8 E. 21 Qs. *Equality before law.*

8. Dollar of Chili. Value 101 cents.

Obverse. CHILE INDEPENDIENTE. UN PESO. SANTIAGO. *Independent Chili.* One dollar.

Reverse. UNION Y FUERZA. LIBERTAD. *Union and strength.* Liberty.

9. Doubloon of Bolivia, 1827-36. Value, \$15 58.

Obverse. LIBRE POR LA CONSTITUCION. *Free by the Constitution.*

Reverse. REPUBLICA BOLIVIANA, Ps. 8s. *Bolivian Republic.* Potosi, 8 escudos.

10. Half dollar of Bolivia. The pieces of 1830, and since, are of base alloy.

PLATE V.

1. Moidore, or 4000 reis, of Brazil, 1779-1819. Value, \$4 92.

Obverse. JOANNES VI. D. G. PORT. BRAS. ET ALG. REX, 1819. *John VI. by the grace of God, King of Portugal, Brazil, and Algarves.*

2. Half-joe, or 6400 reis, 1833-38. \$8 72.

Obverse. PETRUS II. D. G. C. IMP. ET PERP. BRAS. DEF. 1838. *Peter II. by the grace of God, Constitutional Emperor, and Perpetual Defender of Brazil.*

Reverse. (In very small letters) IN HOC S. VINCES. *By this sign (alluding to the cross) thou mayest conquer.*

3. Silver piece, of 640 reis, 1816-21. Value 67·5 ets.

Obverse. As in No. 1; with the addition of R, for Rio Janeiro, and 640.

Reverse. NATA STAR. SUBQ. SIGN. *Born under a steady sign.*

4. 640 reis, 1822-26.

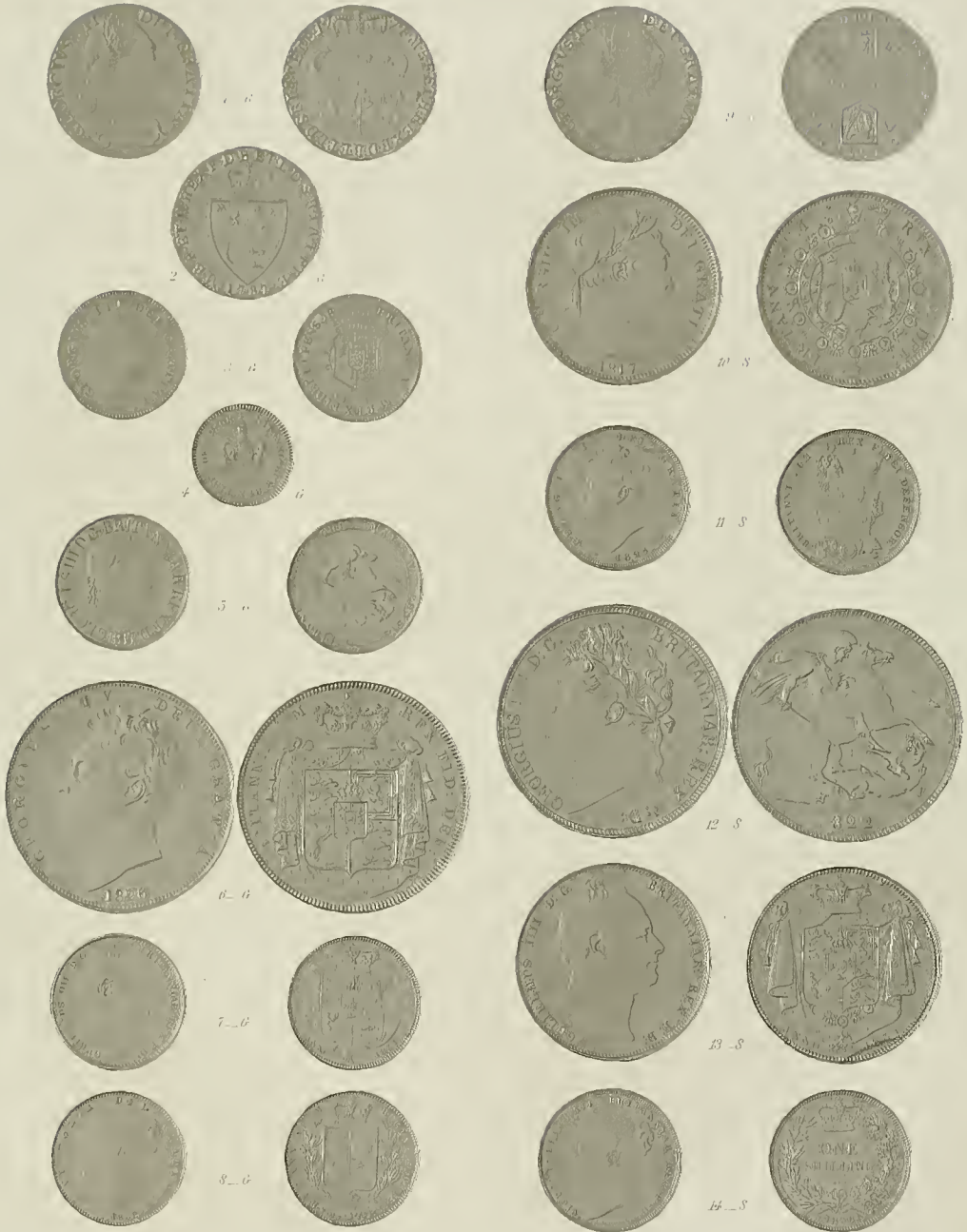
Obverse and Reverse, see No. 2.

5. 1200 reis, 1837-38.
Obverse and Reverse, see No. 2.
6. British colonial quarter dollar, 1822. 25 ets. (See West Indies.)
Obverse. GEORGIUS IV. D. G. BRITANNIARUM REX, F. D. *George IV. by the grace of God, King of the British islands, Defender of the Faith.*
Reverse. COLONIAR. BRITAN. MONET. *Money of the British colonies.*
7. 20 skilling piece of Danish West Indies, 1816. 12·5 ets.
Obverse. XX SKILLING DANSK AMERIKANSK MYNT. 20 *skillings, Danish-American money.*
8. Dollar, or three guilders, of Demerary. 80 ets. (See *Guiana*).
Obverse. See No. 6.
Reverse. UNITED COLONY OF DEMERARY AND ESSEQUIBO.
9. 50 centimes of Hayti. 16 ets.
Obverse. J. P. BOYER, PRESIDENT, AN. 25.
Reverse. REPUBLIQUE D'HAÏTI. *Republic of Hayti.*
10. Dollar of La Plata, 1828, (See *Argentine Republic*.)
Obverse. PROVINCIAS DEL RIO DE LA PLATA. *Provinces of Rio de la Plata.*
Reverse. EN UNION Y LIBERTAD, 8 R. *In union and liberty. 8 reals.*
 Since this plate was engraved, new dollars of the Argentine Republic have been received. The legends are,
Obverse. REPUB. ARGENTINA CONFEDERADA. *Confederated Argentine Republic.*
Reverse. ETERNO LOOR AL RESTAURADOR ROSAS. *Eternal praise to the restorer Rosas.*

PLATE VI.

1. Guinea of Great Britain, 1760-85. Value \$5 02.
Obverse. GEORGIUS III. DEI GRATIA. *George III. by the grace of God.*
Reverse. 1774. M. B. F. ET H. REX, F. D. B. ET L. D. S. R. I. A. T. ET E. *King of Great Britain, France, and Ireland; Defender of the Faith; Duke of Brunswick and Luneburg; Arch Treasurer and Elector of the Holy Roman Empire.* (The allusion is to the empire of Germany.)
2. Guinea of 1787-98. \$5 04. The legends as before. The only change is in the shield, on the reverse.
3. Half guinea, 1801-13. \$2 52.
Obverse. As in No. 1.
Reverse. BRITANNIARUM REX, FIDEI DEFENSOR. HONI SOIT QUI MAL Y PENSE. *King of the British islands, Defender of the Faith. Shame to him who thinks evil of it.* (The latter legend is within the other, and on the shield.)
4. One-third guinea, 1806-13. \$1 65. Legends as in No. 3, except "HONI," &c.
5. Sovereign, 1817-20. \$4 83.
Obverse. GEORGIUS III. D. G. BRITANNIARUM REX.
Reverse. HONI SOIT, &c.
6. Five sovereign piece, 1826. \$24 25.
Obverse. GEORGIUS IV. DEI GRATIA.
Reverse. BRITANNIARUM REX, FID. DEF.
 The coins of this size are show pieces, not meant for circulation. The double sovereign is the largest current coin, but is seldom seen.
7. Sovereign, 1831-36. \$4 85.
Obverse. GULIELMUS IIII. D. G. BRITANNIAR. REX, F. D.
Reverse. ANNO 1831.
8. Sovereign, 1838-40. \$4 86.
Obverse. VICTORIA DEI GRATIA.
Reverse. BRITANNIARUM REGINA. FID. DEF.
9. Shilling, 1787. 23 ets; legends as in No. 1.
 In 1804, Spanish dollars were re-stamped as Tokens for Five Shillings, by the Bank of England. The legends are,
Obverse. GEORGIUS III. DEI GRATIA REX.
Reverse. BANK OF ENGLAND, FIVE SHILLINGS, DOLLAR.
- The Bank of Ireland, in like manner, converted them into Tokens for Six Shillings Irish. Other tokens, for smaller amounts, were plentifully issued from 1804 to 1815. (See *Britain*.)
10. Half crown, 1817-20. 54 ets.; legends nearly as in No. 3.
11. Shilling of George IV. 1825. 21·7 ets.
12. Crown of George IV. 1822. \$1 09. The half crowns of this monarch, besides the usual legends, bear the motto, DIEU ET MON DROIT. *God and my right.*
 On the edge of the crown, are the words DECUS ET





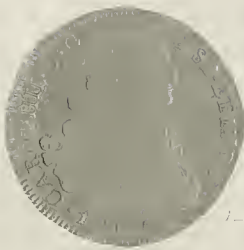
FRANCE.

P. III.









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2-6



1-5



2-6



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2-6



10-6



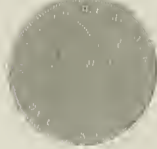
5-5



11-5



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12-5



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PLATE VIII



TUTAMEN.* ANNO REGNI SECUNDO. *Ornament and safety*, (that is, this mode of milling the coin is at once an ornament, and a protection against clipping.) *Second year of the reign.*

13. Half crown of William IV., 1831-36. 54 cts.; legends as in No. 7.

14. Shilling of Victoria, 1838-40. 21·7 cts.

PLATE VII.

1. Double louis'd'or of France, 1786-92. Value \$9 12.

Obverse. LUD. XVI. D. G. FR. NAV. REX. *Louis XVI, by the grace of God, King of France and Navarre.*

Reverse. CHR. REC. VINC. IMPER.† 1786. W. *Christ reigns, conquers, governs.* The letter W. is the mark of the mint at *Lille*.

2. Double Napoleon, or 40 francs. Years 11, 12, of the Republic. \$7 68.

Obverse. BONAPARTE, PREMIER CONSUL. *Bonaparte, First Consul.*

Reverse. REPUBLIQUE FRANÇAISE. 40 FRANCS. *French Republic, &c.* Letter A, for the Paris mint.

Edge. DIEU PROTÈGE LA FRANCE. *God protect France.*

3. 40 francs, 1804-14. \$7 68.

Obverse. NAPOLEON EMPEREUR. On the reverse, for the first few years, was continued the legend REPUBLIQUE FRANÇAISE, but afterwards it gave place to EMPIRE FRANÇAIS. The edge as in No. 2.

4. 40 francs, 1816-24. \$7 68.

Obverse. LOUIS XVIII., ROI DE FRANCE. *Louis XVIII., King of France.*

Reverse. 40 F. (Pieces of 1815 had on the reverse, PIÈCE DE 20 FRANCS.)

On the edge, DOMINE SALVUM FAC REDEM. *God save the King.*

5. 40 francs of Charles X., 1824-30. \$7 69; legends as before.

6. 20 francs, 1830-40. \$3 85.

* This motto first appeared on the crowns of Charles II. It is said to have been borrowed from an inscription in the vignette of a New Testament, belonging to Cardinal Richelieu.

† This legend was introduced by Louis IX. (called St. Louis) about the year 1250. It was discontinued at the Revolution of 1792.

Obverse. LOUIS PHILIPPE I., ROI DES FRANÇAIS. *Louis Philippe I. King of the French.*

Edge. DIEU PROTÈGE LA FRANCE.

7. Half crown, 1774-92. 54 cts.

Obverse. As in No. 1.

Reverse. SIT NOMEN DOMINI BENEDICTUM. *Blessed be the name of the Lord.* On the edge, DOMINE SALVUM FAC REDEM.

8. 5 francs, years 4 and 5. 93 cts.

Obverse. REPUBLIQUE FRANÇAISE. 5 FRANCS. L'AN. 5. Q. The letter Q is the mint-mark at Perpignan.

Reverse. UNION ET FORCE. *Union and Strength.* On the edge, GARANTIE NATIONALE. *National guarantee.*

9. 5 francs of Napoleon. 93 cts. The series corresponds to the gold of the same date; see Nos. 2 and 3.

10. 2 francs of Louis XVIII. 37·5 cts.

11. 2 francs of Charles X. 37·5 cts.

12. 5 francs of Louis Philippe. 93 cts.

13. 2 francs of Louis Philippe. 37·5 cts.

PLATE VIII.

1. Doubloon of Spain, 1789-1808. Value \$15 57.

Obverse. CAROL. IIII. D. G. HISP. ET IND. R. *Charles IV., by the grace of God, King of Spain and the Indies.*

Reverse. IN UTROQ. FELIX AUSPICE DEO. *Happy in both under the Divine auspices.* (The word both, we presume, refers to Spain and the Indies.)

2. Pistole, or quarter doubloon, of Ferdinand VII. \$3 90. Legends as above.

3. Pistole of Ferdinand, since the revolution of 1821. \$3 90.

Obverse. FERN. 7º POR LA G. DE DIOS Y LA CONST. *Ferdinand VII. by Divine grace and the Constitution.*

Reverse. REY DE LAS ESPAÑAS. *King of Spain.* An M crowned, for the Madrid mint; and 80 R. for 80 reals vellon.

4. Cross pistareen. 1759-71. 19 cents.

Obverse. CAROLUS III. D. G.

Reverse. HISPANIARUM REX. The devices are the same as those of the Peninsular dollar.

5. Pillar dollar. 1772-1823. \$1 00. The legend contains the additional words, ET IND., *and the Indies*,

referring to the colonies in America, where this piece was struck. The pillars are meant to represent the two promontories which form the Straits of Gibraltar, anciently known as the "Pillars of Hercules;" on these is a scroll, with the motto PLUS ULTRA, *more beyond*.* The previous coinage of the colonies exhibited two hemispheres, representing the old world and the new, with the motto VTRAQUE VNVM, *both one*. The devices on the old *cob* dollars are noticed at page 120.

6. Dollar of Joseph Bonaparte. 1809-13. \$1.00.

7. New dollar of Ferdinand VII. 1833.

Obverse. FERNANDO 7°. POR LA G. DE DIOS.

Reverse. REY DE ESPAÑA Y DE LAS INDIAS.

8. Dollar of Isabel II. 1836.

9. Half-joe, or 6400 reis, of Portugal. 1727-1824. \$8 54 to 8 70.

Obverse. MARIA I. D. G. PORT. ET ALG. REGINA. *Maria I. by Divine Grace, Queen of Portugal and Algarves.*

The *reverse* is without any legend.

The *moidore* series, 1689 to 1726, (necessarily omitted,) bore a loaded cross, with the legend, IN HOC SIGNO VINCES; *by this sign thou mayest conquer*. The number of *reis*, as 1000, 4000, &c., was stamped on the side of the shield.

10. New gold corôa, or crown. 1838. \$5 81.

Obverse. MARIA II. PORT. ET ALGARV. REGINA.

Reverse. 5000 REIS.

11. Silver cruzado of 480 reis. 1795-1826. 54 cents.

Obverse. JOANNES D. G. PORT. ET ALG. P. REGENS. *John, by Divine Grace, Prince Regent of Portugal and Algarves.*

Reverse. IN HOC SIGNO VINCES.

12. Piece of 200 reis. 1838. 22.6 cents. Legends as in No. 10.

PLATE IX.

1. Quadruple ducat of Austria. 1840. \$9 14.

Obverse. FERD. I. D. G. AVSTR. IMP. HUNG. BOH. R. H. N. V. *Ferdinand I., by the grace of God, Emperor of Austria, King of Hungary and Bohemia.* (The *H. N. V.* we cannot explain.)

* Pillar dollars were struck for a short time in Spain, after the revolution of 1821. The legends were in Spanish.

Reverse. REX LOMB. ET VEN. DALM. GAL. LOD. ILL. A. A. (4.) *King of Lombardy and Venice, Dalmatia, Galizia, Lodomeria, Illyria; Archduke of Austria.* The figure 4 signifies *four ducats*.

The single ducat bears the same legends.

The ducat of Francis I. bore on the obverse, FRANCISCVS I. D. G. AVSTRIAE IMPERATOR.

2. Kremnitz, or Hungary ducat. 1839. \$2 28. The legend of the obverse consists of abbreviated titles, nearly as above. On the reverse is the figure of the Virgin and Child, with the legend, S. MARIA MATER DEI, PATRONA HUNG. 1839. *Holy Mary, Mother of God, Patroness of Hungary.*

3. Sovereign. 1831-39. \$6 75. Legends as in No. 1.

4. Imperial thaler or rixdollar. 1853-1840. 97 cents.

Obverse. M. THERESIA, D. G. R. IMP. HU. BO. REG. *Maria Theresa, &c.*

Reverse. ARCHID. AUST. DUX BURG. CO. TYR. *Archduchess of Austria, Duchess of Burgundy, Countess of Tyrol.*

On the edge, JUSTITIA ET CLEMENTIA. *Justice and Mercy.*

Some of the rixdollars of the Empress were without her effigy, bearing instead the inscription, in a wreath, AD NORMAM CONVENT. *At the rate of the Convention.* That is, of ten dollars to the Cologne mark fine.

The Kremnitz or Hungary dollars also omitted the head of the Empress, and bore the devices stated in No. 2.

5. Hungary dollar, of Joseph II. 1782. 97 cents. See No. 2.

6. Zwanziger, or 20 kreutzer piece of Francis I. 1827. 16 cents.

7. Rixdollar of Ferdinand I. 1840. 97 cts.

8. Piece of 20 kreutzers. 1840. 16 cts.

9. Hungary rixdollar. 1839. 97 cts.

10. Scudo of Lombardy. 1839. 97½ cts.

The scudo resembles the rixdollar in its devices and legends, and can only be distinguished by the quarterings on the shield. On the Lombard coins the *serpent* is conspicuous.

The old *Brabant crown*, which ceased to be coined about the year 1800, but is still current, is necessarily omitted. It is distinguished from money properly Austrian, by not bearing the double-headed eagle, but instead thereof, an ornamented cross, in the fashion



1-6



2-5



4-5



3-6



6-8



5-8



9-8



7-8



10-8



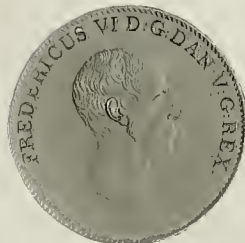
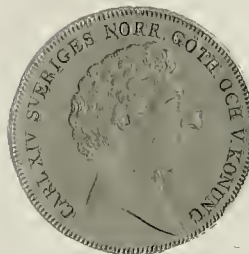
11-8



12-8









of the letter X, with the legend, ARCH. AVST. DVX BVRG. LOTH. BRAB. COM. FLAN. *Archduke of Austria; Duke of Burgundy, Lorraine and Brabant; Count of Flanders.* \$1 06.

11. Lira of Lombardy. 1839. 16 cts. The legend (besides some of the usual titles) bears the words LIRA AVSTRIACA.

PLATE X.

1. Specie dollar of Norway. 1831. \$1 06.

Obverse. CARL XIV. JOHAN. NORGES SVER. G. OG V. KONGE.

Charles John XIV., King of Norway, Sweden, Goths, and Vandals.

Reverse. 1 SPS. 9½ST. 1 Mk. F. S. *One specie dollar; 9½ pieces to a mark of fine silver.* The two hammers crossed refer to the silver mines of Norway.

In former times a couplet was introduced into the legend, which ran thus :

MOD TROSKAB DAPPERHED, OGHVAD DER AERE
GIVER DEN HEELE VERDENRAND BLANT NORSKE
KLIPPER LAERE.

*Spirit, loyalty, valour, and whatever is honourable,
let the whole world learn among the rocks of Norway.*

2. Specie dollar of Sweden. 1830-41. \$1 06.

Obverse. CARL XIV., SVERIGES NORR. GOTL. OCH V. KONUNG.

Charles XIV., King of Sweden, Norway, the Goths and Vandals.

Reverse. FOLKETS KARLEK MIN BELONING. 1R. SP.
The people's love is my recompense. 1 rixdollar specie.

Formerly, other legends were used, such as FADERNES LANDET, *the land of our fathers*; GUD OCH FOLKET, *God and the people*, &c.

3. Dneat of Sweden. 1838. \$2 26. Legends as in No. 2.

4. Specie dueat of Denmark. 1791-1802. \$2 27.

Obverse. MONETA AUREA DANICA. *Gold money of Denmark.*

Reverse. INSCRIPTION. 1 SPECIES DUCAT. 23½ KARAT. 67 STYKKER, 1 MARK BRUTO. *One specie dueat, 23½ carats fine, 67 pieces to the mark gross.*

The current dueat, of earlier date, bore the king's head, with the legend CHRISTIANUS VII. D. G. REX,

DAN. NOR. V. G. *Christian VII. by Divine grace King of Denmark, Norway, Goths and Vandals.*

On the reverse, GLORIA EX AMORE PATRIÆ. XII M. *Glory from the love of our country. Twelve marks.* Value \$1 81.

5. Double Frederickd'or, or ten thaler piece. 1813-39. \$7 88.

Obverse. FREDERICUS VI. REX DANIÆ.

Reverse. 2 FR. D'OR.

The Christiand'or, of 1775, bore the same legends as the current dueat, above described; but the reverse had three crowns in the device, while the dueat had but one. Value \$4 01.

There is some variation in the devices of the double and single Fredericks, but none in the value.

6. Specie rixdollar, or double rigsbank daler. 1837-39. \$1 05.

Obverse. FREDERICUS VI. D. G. DAN. V. G. REX.

Reverse. EN RIGSDALER SPECIES.

7. Forty francs, of Belgium, 1835. \$7 67.

Obverse. LEOPOLD PREMIER, ROI DES BELGES. *Leopold I. King of the Belgians.*

Reverse. 40 FRANCS.

8. Silver franc, 1835. 18·6 cts.; legends as in No. 7.

9. Ten guilder piece of Netherlands, 1816-39. \$4 00.

Obverse. WILLEM KONING DER NED. G. H. V. L. *William, King of the Netherlands, Grand Duke of Luxembourg.*

Reverse. MUNT VAN HET KONINGRYK DER NEDERLANDEN, 10 G. *Money of the kingdom of Netherlands.*

Edge. GOD ZY MET ONS. *God be with us.*

10. The Holland, or Netherlands dueat, 1770-1839. \$2 26.

Obverse. INSCRIPTION. MO. AUR. REG. BELGIÆ AD LEGEM IMPERII. *Gold money of the Belgian kingdom, at the rate of the Empire*; referring to the German standard of 67 dueats to the mark. In former years, the inscription ran thus: MO. ORD. PROVIN. FOEDER. BELG. AD LEG. IMP. *The common coin of the Federal Belgic Provinces, at the Imperial rate.*

Reverse. CONCORDIA RES PARVAE CRESCUNT. *Small things increase by concord.* The earlier dueats (before the monarchy) add the name of the province; as, TRA. for *Utrecht*, HOL. for *Holland*, &c.

11. Silver ducatoon, coined for the East Indies, 1766-1804. \$1 26.

Obverse. MO. NO. ARG. CONFÆ. BELG. PRO. TRAI. *New money of the confederated Belgian Provinces. Utrecht.*

Obverse. As in No. 10.

The patagon, or leg-dollar (not in the plate) may be known by a military figure, *on foot*; the legends as in No. 11.

The florin or gulden series, before the monarchy, (also omitted) is distinguished by a female figure, and the motto HANC TVEMVR HAC NITIMVR. *This we support—on this we depend.*

12. Quarter florin, or piece of 25 centimes, of Netherlands, 1824-30. 10 cts.

13. Florin of King William, 1816-38. 40 cts.; legends as in No. 9.

14. Piece of two marks current, or 32 schillings, of Hamburg, 1808. 57 cts. On the reverse is 17 EINE MARK FEIN. 17 *pieces to the fine mark.*

PLATE XI.

1. Gold piece of five roubles, of Russia. \$3 97. No legend on the obverse. On the reverse, (in the Russian language and character), 5 *roubles*, 1839, *pure gold*, 1 *solotnik* 39 *dolie*.

2. Platinum piece of three roubles. *Reverse.* 3 *roubles silver*, 2 *solotniks* 41 *dolie*, *Oural platinum.*

3. Ten thaler piece of Mecklenburg-Schwerin. \$7 89.

Obverse. PAUL FRIEDR. GROSHERZOG V. MECKLENBURG-SCHWERIN. *Paul Frederick, Grand Duke of &c.*

Reverse. ZEHN THALER. *Ten thalers*, or dollars.

4. Silver rouble of Alexander, of Russia, 1807. 75 cts.

5. Piece of 1½ roubles, or 10 *zlotych* of Polish Russia, 1835. \$1 14.

6. Piece of 5 *zlotych*, of independent Poland, 1831. 56 cts.

Obverse. KROLESTWO POLSKE. *Kingdom of Poland.*

Reverse. 5 ZLOT. POL. ROKU, 1831. 5 *Polish zlot.* year 1831; and a legend signifying 17½ *pieces to a fine mark.*

On the edge, BOZE ZBRAW POLSKE. *God save Poland.*

7. Silver rouble of Nicholas, of Russia. 75 cts.

Obverse. *Pure silver*, 4 *solotniks* 21 *dolie*.

Reverse. Money Rouble, 1838.

8. Frederickd'or, or gold piece of five thalers, of Prussia.

Obverse. FRIEDR. WILH. III. KOENIG V. PREUSSEN. *Frederick William III. King of Prussia.*

9. Double Frederickd'or. \$7 94.

10, 11, 12. Prussian *reichs thaler*, or rixdollar; different dies. 68½ cents. On the reverse, VIERZEHN EINE FEINE MARK; *fourteen to a fine mark.*

13. Piece of five *drachmai*, or drachms, of Greece. 1833. 83½ cents.

Obverse. (In Greek language and character.) Otho, *King of Greece.*

PLATE XII.

1. Gold five thaler piece of Saxony. \$3 97.

Obverse. FRIEDRICH AUGUST. V. G. G. KOENIG V. SACHSEN. *Frederick Augustus, by Divine grace, King of Saxony.*

Reverse. FÜNF THALER. *Five dollars.*

2. Ten thaler piece of Anthony, of Saxony, 1830-36. \$7 94.

3, 4. Convention thalers of Saxony, of *ten to a fine mark*. 97 cents. On the edge, GOTT SEGNE SACHSEN. *God bless Saxony.*

5. Convention florin, or half-thaler, of Saxony. 48 cents.

6. New rixdollar of Saxony, *fourteen to the fine mark*. 69 cents.

7, 8, 9. Ten thaler pieces of the Duke of Brunswick and Luneburg; the first of Frederic William, the others of William. \$7 89.

10. Piece of four good groschen, of Brunswick. 12 cents.

11. Thaler, of the same, at *fourteen to a fine mark*. 69 cents. On the edge, NEC ASPERA TERRENT. *Rough places do not deter him.**

12. Five thaler piece of William IV. of Hanover. \$3 94.

13, 14, 15. Ten thaler pieces of George III.,

* Formerly the motto over the *salient horse*, on Brunswick coins.



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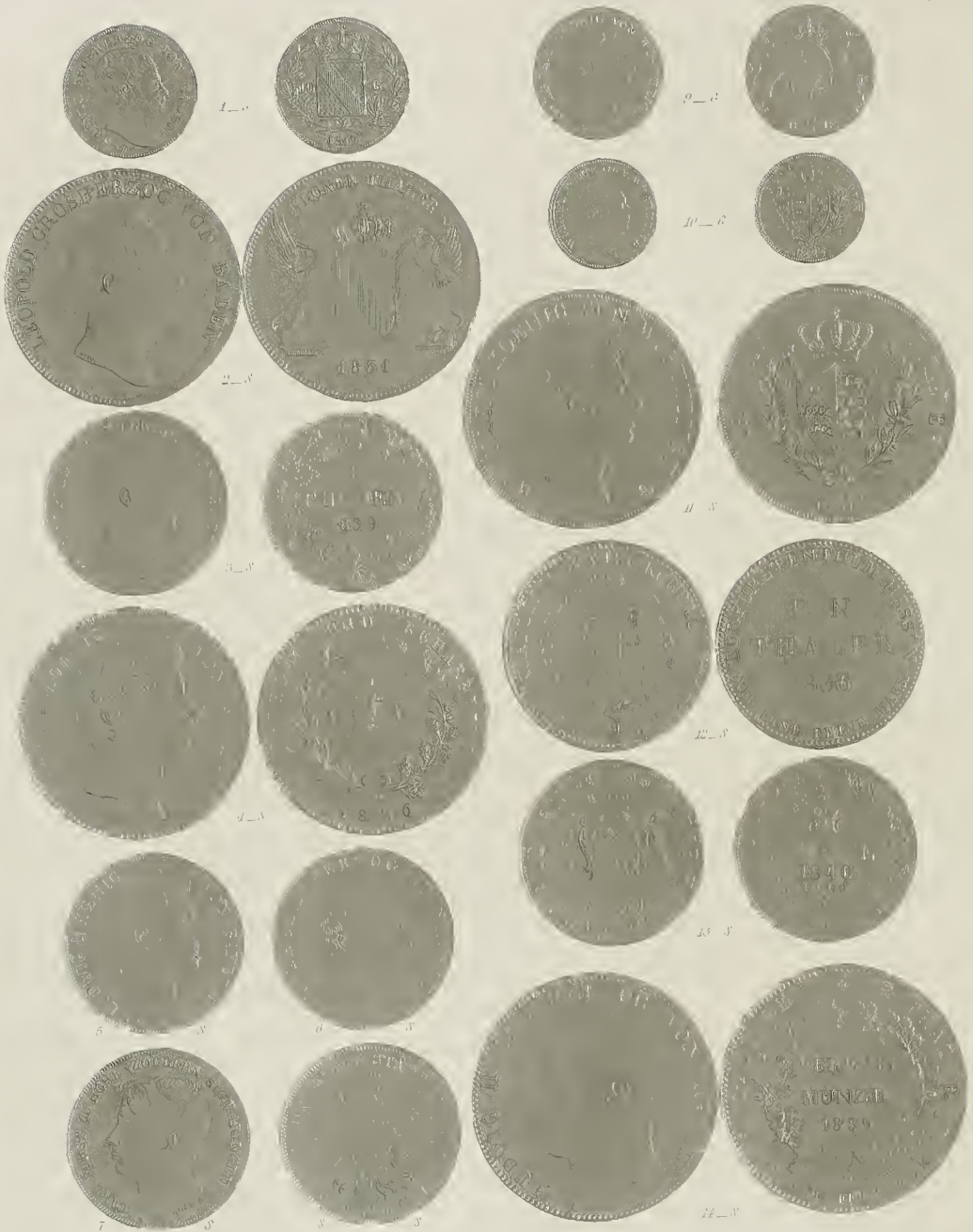
RUSSIA PRUSSIA &c.

14















George IV., and Ernest Augustus, of Hanover. The first two, \$7 84; the last, \$7 89.

16. Florin, or *zwey-drittel* of Hanover. 1839. 54·7 cents.

Reverse. NACH DEM LEIPZIGER FUSSE. FEINES SILBER. *On the basis of Leipsick. Fine silver.*

PLATE XIII.

1. Piece of ten florins, of Baden. 1819. \$4 08.

Obverse. LUDWIG GROSHERZOG VON BADEN. *Louis, Grand Duke of Baden.*

Reverse. 10 G. for ten guilders, gulden or florids.

2. Crown-dollar, of Baden. \$1 07.

3. Gulden of Baden. 1837-39. 39·7 cents.

4. Crown of Bavaria. 1809-25. \$1 07.

Obverse. LUDWIG, KOENIG VON BAYERN. *Louis, King of Bavaria.*

Reverse. GERECHT UND BEHARRLICH. *Just and constant.*

On the edge, BAYERISCHER KRONTHALER. *Bavarian Crown Dollar.* The crown of his predecessor bore the following legends:

Obverse. MAXIMILIANUS JOSEPHUS, BAVARIAE REX.

Reverse. PRO DEO ET POPULO. *For God and the People.*

The convention dollar bore the Virgin and Child, (like the dollar of Hungary,) with the legend PATRONA BAVARIAE; *Patroness of Bavaria.*

5, 6, 7, 8. New florins of Bavaria, Nassau, Hohenzollern-Sigmaringen, and the free city of Frankfort. 39·7 cents.

9. Ducat of Wurtemberg. 1818. \$2 23.

Obverse. WILHELM, KOENIG VON WÜRTTEMBERG.

10. Piece of five florins, or gulden, of Wurtemberg. \$2 04. (At page 148 it is erroneously stated that the ducat is the only gold coin. This has not been assayed, but it is presumed to be of the same fineness as piece No. 1, above.)

11. Crown dollar of Wurtemberg. 1818-33. \$1 07. On the edge, FURCHTLOS UND TREU. *Fearless and true.*

12. Dollar of Hesse Cassel. 1832-37. 69 ets.

Obverse. WILH. II. KURF. U. FRIEDR. WILH. KURPR. U. MITREGENT.

William II. Elector, and Frederick William, Electoral prince and co-regent.

Reverse. KURFÜRSTENTHUM HESSEN. EIN THALER XIV EINE FEINE MARK.

Electorate of Hesse. One dollar. Fourteen to a fine mark. On the edge: GOTT BESCHIRME UNS. *God protect us.*

13. Piece of 36 grotes, of Bremen. 1840. 35·7 ets.

Obverse. FREIE HANSESTADT BREMEN. *Free Hanse town of Bremen.*

14. New two dollar piece, of Hesse Darmstadt. 1839. \$1 39.

Obverse. LUDWIG II. GROSHERZOG VON HESSEN. *Louis II. Grand Duke of Hesse.*

Reverse. VEREINS MÜNZE. 3½ GULDEN. 2 THALER. VII EINE FEINE MARK. *Union money, &c.*

On the edge, CONVENTION VOM 30 JULY, 1838.

PLATE XIV.

1. Swiss crown, or piece of four franks. 1814. \$1 10.

Reverse. SCHWEIZER EIDSGEHOSEN XIX. CANT. 4 FRANKEN. *Swiss confederacy, 19 cantons, &c.*

2. Piece of 25 centimes, of Geneva. 1839. 4 ets.

Reverse. POST TENEBRAS LUX. *Light after darkness.* (The distinctions of the coin of the various cantons may be seen further by referring to the article *Switzerland*.)

3. Piece of 40 lire, or 40 franes, of the kingdom of Napoleon in Lombardy. 1805-14. \$7 70.

Obverse. NAPOLEONE IMPERATORE E RE. *Napoleon, Emperor and King.*

Reverse. REGNO D'ITALIA. *Kingdom of Italy.*

4. Piece of 20 lire or franes, of Sardinia. 1815-36. \$3 84.

Obverse. VIC. EM. D. G. REX SAR. CYP. ET. HIER. *Victor Amadeus, by the grace of God, King of Sardinia, Cyprus, and Jerusalem.*

Reverse. DVX SAB. ET MONTISF. PRINC. PED. L. 20. *Duke of Savoy and Montisferrat, Prince of Piedmont. 20 lire.*

5. Piece of 40 lire, of Charles Felix, of Sardinia. \$7 65.

6. Piece of 5 lire, of Charles Albert, of Sardinia. 93 ets.

7. Sequin, or *zecchino* of Tuscany. 1824-34. \$2 30.

Obverse. LEOPOLDVS II. D. G. A. A. M. D. ETR.

Leopold II. by Divine grace, Archduke of Austria, Grand Duke of Etruria, or Tuscany.

Reverse. S. JOANNES BAPTISTA. *St. John Baptist.*

8. Half leopoldone, or five pauls, of Tuscany. 52 cts.

Obverse. LEOPOLDVS II. D. G. P. I. A. P. R. ET B. A. A. MAGN. DVX ETR. *Leopold II. by Divine grace, Prince of the Austrian empire, Prince Royal of Hungary and Bohemia, Archduke of Austria, Grand Duke of Tuscany.*

Reverse. NOSTER DEUS SUSCEPTOR. PISIS. *God undertakes for us. Struck at Pisa.*

9. Florin of Tuscany. 1826-28. 26 cts.

Obverse. LEOPOLDO II. A. D. A. GRANDUCA DI TOSCANA.

Reverse. FIORINO. QUATTRINI CENTO. *Florin of one hundred quattrini.*

10. Piece of ten scudi, of Rome. 1835-36. \$10 36.

Obverse. GREGORIUS XVI. PON. MAX. A. VI. *Gregory XVI. sovereign pontiff, year VI.*

11. Silver testone, or 30 bajocchi, of Rome. 30 cts.

Obverse. SEDE VACANTE, MDCCCXXX. *The See being vacant, 1830.*

Reverse. VENI LUMEN CORDIUM. BAJ. 30. *Come thou, the light of all hearts, (referring to the Dove, or Holy Spirit.) There is a great variety in the devices on Papal coins.*

Pieces formerly struck at Bologna, bore the legend BONONIA DOCET, *Bologna teaches*, (referring to the great University); or, POPULUS ET SENATUS BON. *People and Senate of Bologna.*

12. Piece of 20 lire, or francs, of Naples. \$3 84.

Obverse. GIOACCHINO NAPOLEONE. *Joachim Napoleon (Murat).*

Reverse. REGNO DELLE DUE SICILE. 20 LIRE. *Kingdom of the two Sicilies, &c.*

13. Scudo, or piece of 12 earlins, of Naples. 95 cts.

Obverse. FERDINANDUS II. DEI GRATIA, REX.

Reverse. REGNI VTR. SIC. ET HIER. G. 120. *Kingdom of the two Sicilies, and Jerusalem. 120 Grani.*

Pieces of the island of Sicily bear an eagle, instead of the shield.

PLATE XV.

1. Yuzlik, or 2½ piastres, of Turkey, 1831-32. 7 cts.

Obverse. The *toghra* or cipher of Sultan Mahmoud. This is said to be an involution of the letters of his name, but so fanciful a one, that common readers cannot disentangle it.

Reverse. (In Arabic.) *Struck at Constantinople.* At the bottom is the date 1223, corresponding to A. D. 1808; at the top the figures 24, meaning that year of Mahmoud's reign, and which added to 1223, gives 1247, or A. D. 1831-2, the true date of the coin.

2. Altmichlik of Abdul Medjid, 1840. 5½ cts.; the inscriptions as before.

3. Gold bedidlik of Mehemet Ali, of Egypt, 1839. \$4 97.

Obverse. The cipher of Sultan Abdul Medjid; underneath, G. 100, for 100 ghersh, or piastres.

Reverse. (In Arabic.) *Struck at Misr (Egypt), 1255.* The 1 at top signifies the first year of the sultan's reign.

4. Real, of 20 piastres. 97 cts.; inscriptions as before.

5. Ghersh of Youssuf, Bashaw of Tripoli, 1832. 10 cts.

Obverse. Cipher of Sultan Mahmoud; underneath, in Arabic, *Struck in Tripoli of the West, 1223.*

Reverse. *Sultan of two continents (or lands) and monarch of two seas, sultan, son of the sultan, 25.* This is the date of the reign, which, added to 1223, on the obverse, gives the date of the coin.

6. Half ghersh, of the same. 5 cts. On this coin the date of the reign (28) is on the same side as the cipher; on the other side is *struck at Tripoli of the West, 1223.* (The designation "of the West" distinguishes it from the pæhalic of Tripoli in Syria.)

7. Double piastre, of the Bey of Tunis, 1829. 26 cts.

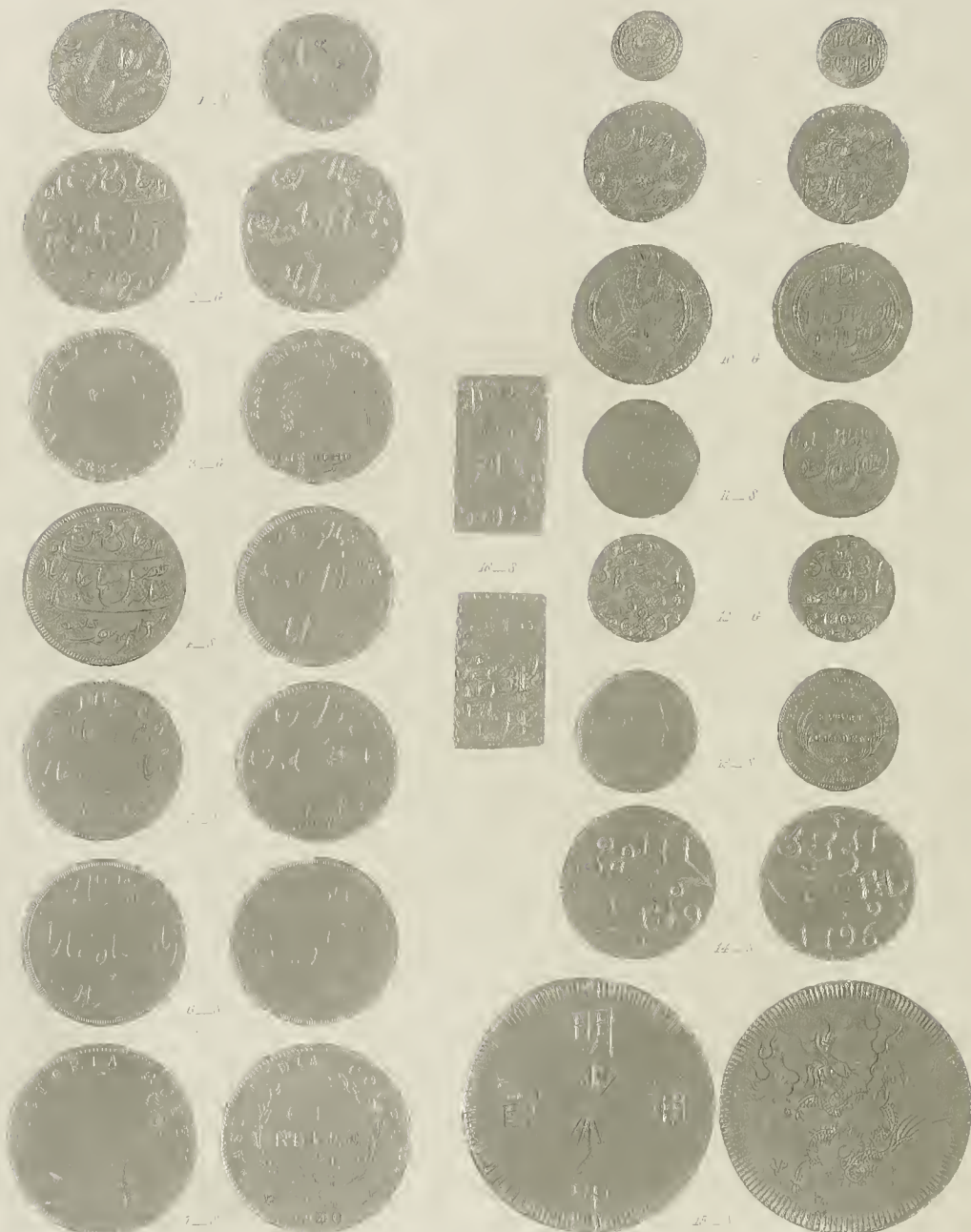
Obverse. (In Arabic.) *Sultan of two lands, and sovereign of two seas, sultan, son of the sultan.* In the middle, *May God bless him greatly.*

Reverse. *The Sultan Mahmoud Khan, son of the Sultan Abdul Hamid, servant of the Praisèd One; may God continue his kingdom.* In the middle, *Struck in Tunis, 1245.*

8. Piastre of Tunis, 1839. 13 cts.; the obverse is as in No. 7, except that it reads as an inscription, and not as a legend. The reverse is simply, *Struck in Tunis, 1255.*

9. Coin of Algiers, 1821. The obverse as in No. 7; the reverse, *Struck in Jezair (Algiers), 1237.*







10. Real, or dollar of Morocco, 1776. \$1 00.

Obverse. (In rude Arabic.) *The One is one*, (referring to the unity of the Deity.) The date 1190, in European instead of Arabic numerals.

Reverse. *Struck in Marakash*, or Morocco.

11. Half-dollar of the colony of Sierra Leone. 1791. 46 cents.

12. Piece of ten macutas, of Portuguese Africa. 1783. 55 cents.

PLATE XVI.

1. Old sicca rupee of the Mogul Empire. This piece is very thick, but much smaller in diameter than the dics, so that the impressions are too defective to be understood. Value 47 ccents.

2. Gold mohur, of the 19th sun, or year. \$8 15.

Obverse. (In Persian.) *He who is the shadow of divine favour, the defender of the religion of Mahomed, the Emperor Shah Alum, coins money for the seven climates*, i. e., the whole world. The date 1204, (A. D. 1789,) is in very small figures.

Reverse. *Struck in Morshedabad, in the 19th year of the happy accession to the throne.* (This piece, with the following ones, to No. 7, inclusive, were really the coinage of the British East India Company.)

3. Gold mohur of the East India Company, bearing the head of William IV. of England, with legends in English. 1835. \$7 11.

4. Sicca rupee of Bengal, of the E. I. Company, without date. The inscriptions as in No. 2. 47 cents.

5. Madras rupee of the E. I. Company. 44·5 cents.

Obverse. *Happy coin of Aziz eddin Mohamed Shah Alumghir.* 1172. (A. D. 1758.)

Reverse. *Struck at Arcot, the seventh year of the reign.*

Alumghir reigned from 1754 to 1761, yet his name was continued on the Madras coinage until a recent date. The name of Arcot appears on the coins of the Company's mint at Madras, being a neighbouring city. It thus appears how little is to be learned, from the face of these coins, of their real origin and date. This is a coin of the nineteenth century.

6. Bombay rupee of the E. I. Company. 44·5 cts.

Obverse. *Happy coin of the Shah Alumghir.* 1215. (A. D. 1800.)

Reverse. *Struck at Surat, in the forty-sixth year of his reign.*

Surat is a neighbouring city to Bombay; the monetary connexion between them will be understood by referring to page 72. This coin was struck at Bombay.

7. New rupee of the E. I. Company, coined at Calcutta. 44·5 ccents. The legends in English, with *one rupee* in Persian, under the same words in English.

8. Pagoda of Tippoo, sultan of Mysore. \$1 80.

Obverse. Letter *H*, the cipher of his father, Hyder Ali.

Reverse. (In Persian.) *Mahomed, he is the right sultan.* *Struck at Patan*, (Seringapatam,) *year* 1218. (A. D. 1803.)

9. Ducat of Fatha Ali, Shah of Persia. \$2 23.

10. Toman of the same. \$3 04.

Obverse. *Struck in Tabriz, the seat of majesty.* 1240. (A. D. 1824.)

Reverse. *The sultan, son of the sultan, Fatha Ali Shah, Kajar.*

11. Sahib-koran, of the same. 29 cents. The inscriptions as in No. 10, except the date, 1223. (A. D. 1808.)

The coins of the present monarch, received here, were so faintly struck as not to be fit for engraving. They bear on the obverse, *King of kings, Mahomed Shah*; on the reverse, as in No. 10, except those of Teheran, which read, *Struck at the seat of the Caliph, Teheran.*

12. Gold half-rupee of the Dutch E. I. Company. \$4 12.

Obverse. (In rude Arabic.) *Coin of the Holland Company.*

Reverse. *In the great Island of Java.* 1802.

13. Quarter-florin of the same. 1826. 10 cents.

Obverse. WILLEM KONING DER NED. G. H. V. L. William, King of Netherlands, Grand Duke of Luxemburg.

Reverse. NEDERLANDSCH INDIE. KWART GULDEN. Dutch India. Quarter florin.

14. Silver rupee, of the same, 1796. 35 cts.; the inscriptions as in No. 12.

15. Dollar of Cochín-China. 85 cts.

Obverse. Four characters, two of which give the name or title of the sovereign—the other two are the words TONG PAO, *current money*. A sun in the centre.

Reverse. The Chinese dragon.*

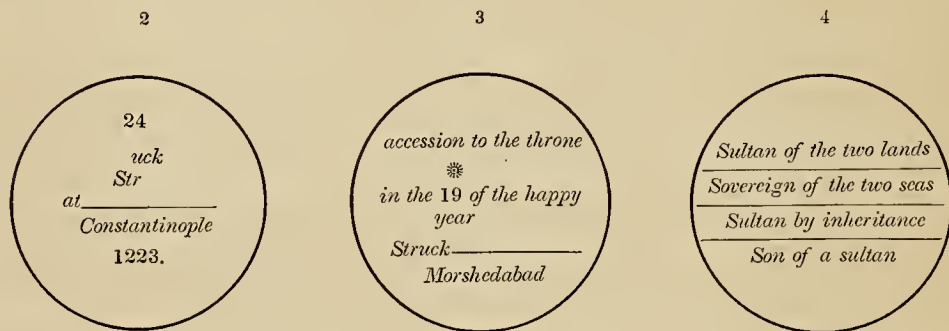
* The foregoing translations are derived from the works of Marsden, Bonneville, and Kelly, and from various private sources of information.

As a sequel to this chapter, it may be proper to give some rules for distinguishing coins impressed with Oriental characters; to attain to which, a knowledge of the languages is not requisite.

Almost the only character inscribed on Oriental coins is the Arabic, variously modified; in Java and Moroeo, the letters are drawn as rudely as possible; in Turkey and Egypt, with more precision; in Persia, they are in the flowing *taleek*, which appears to bear something of the relation to the *niskhi*, or strict Arabic, that our Italian letters do to the Roman. The universality of this character on Eastern moneys is due to the extension and domination of the Mahomedan faith.

But a person may be versed in Arabic and Persian, as he finds them in books, and yet not be able to read these inscriptions. The reasons are the following: first, the letters are not in the form of printing, but of writing; as, for instance, the dashing character (Fig. 1) so conspicuous on all Turkish, Egyptian, and Barbary coins (except Moroeo) is in type the preposition *في*, *in*, or *at*. As this character affords a good clue to those classes of coin, it is to be again noticed. The second reason is, that the arrangement of the words is often irregular and fanciful. For example, if the inscription on the reverse of No. 1, plate XV., (a Turkish silver coin,) were altered from Arabic to English script, it would appear nearly as in Fig. 2. It is meant to read, *Struck at Constantinople*, year 24 of the sultan's reign, which commenced 1223 of the hegra.

Again, No. 4 of plate XVI. (a sicca rupee of Caleutta) will be found still more opposed to our ideas of order. Fig. 3 is the reverse side.



That is, *Struck at Morshedabad in the 19th year of the happy accession to the throne*. Stars or rosettes are frequently put in by way of ornament.

This irregularity (as *we* would call it) is still more embarrassing in Persian coins. But, not to multiply such examples, one must be given in which the inscription is in good consecutive order. The reverse of No. 5, plate XV., (a silver coin of Tripoli,) is shown as an instance. (Fig. 4.) This inscription was formerly very common on Turkish coins. It is now confined to those of Tunis and Tripoli.

Proceeding to identify the coinage of different countries, the reader will take notice, that the character already given, equivalent to the preposition *in* or *at*, is found on all coins of Turkey, and of states really or nominally dependent on that empire. The *toghra* or monogram of the sultan, of which there is a good specimen on the reverse of No. 4, plate XV., is generally on those coins, but the dash, universally. Its place in the inscription is thus explained, "*struck in Constantinople*," Egypt, Tripoli, or otherwise, as the case may be. This mark affords a general distinction between the moneys *west* and *east* of the Euphrates. Supposing it to be found on any given specimen, the possessor will desire to know to what particular state it belongs. For this purpose, he has only to acquaint himself with the word indicating the place of coinage, which, be it

observed, is always directly under the elongated preposition—sometimes a little entangled with it.—The following are the characters proper to the respective Ottoman mints.

| ENGLISH NAME. | CHARACTER ON THE COIN. | TYPOGRAPHIC FORM. | EQUIVALENT IN OUR LETTERS. |
|----------------|------------------------|-------------------|----------------------------|
| Constantinople | اسلامبول | اسلامبول | ISLAMBOUL.* |
| do. | قسطنطينية | قسطنطينيه | KOSTANTINIEH. |
| Egypt | مصر | مصر | MISR. |
| Tripoli | طرابلس | طرابلس | TRABLOUS. |
| Tunis | تونس | تونس | TUNIS. |
| Algiers | جزائر | جزائر | JEZAIR. |

Some allowance is to be made for variations, as the engravers use the license of penmen; but the above will be satisfactory guides, in all cases.

Having thus ascertained the place of coinage, an interesting point remains, to decide the date, and reign. The date is always that of the hegira, or Mahomedan era, and (with one exception) is in Arabic figures. These are as follows.

| | | | | | | | | | |
|---|---|---|----|---|---|---|---|---|---|
| 1 | 2 | 3 | 4† | 5 | 6 | 7 | 8 | 9 | 0 |
| ١ | ٢ | ٣ | ٤ | ٥ | ٦ | ٧ | ٨ | ٩ | ٠ |

These are written from left to right, (according to the European order) but letters and words in Arabic run in the opposite direction. The method of arriving at the date of the coin, (for most Ottoman coins bear two dates, that of the hegira, and of the sultan's reign,) has already been stated, in the description of Plate XV., and in a note on page 17. The accession of the sultans for the past century has been as follows:

| | | | | |
|---------------|-----------|-------------|-----------|-------------|
| Mahmoud I. | | A. H. 1143† | | A. D. 1730. |
| Othman III. | | 1168 | | 1754. |
| Mustapha III. | | 1171 | | 1757. |
| Abdul Hamid | | 1187 | | 1774. |
| Selim III. | | 1203 | | 1789. |
| Mustapha IV. | | 1222 | | 1807. |
| Mahmoud II. | | 1223 | | 1808. |
| Abdul Medjid | | 1255 | | 1839. |

* The usual name for Constantinople in the East is Stamboul, an easy corruption of the original Greek name. The Turks appear to have intended a play upon this word, and at the same time to commend the Mahomedan religion, by stamping on their coins *Islambool*, which means, "the fulness of the true faith." (See Marsden, 409.) This title was last used in the reign of Selim III., which commenced 1203 (A. D. 1789.)

† The figure for 4 is sometimes in the form of our 3, reversed; especially on Ottoman coins.

‡ The Mahomedan year is lunar, and therefore shorter than ours about eleven days. This makes a difference of one year in every thirty-three.

The coins of Morocco are the exception to the foregoing explanations. They may be known by this unique characteristic; the date is that of the hegira, but the figures are European. For an example, see No. 10, Plate XV.

If the coin does not bear the distinguishing mark already stated, and yet is in the Arabic or Persian character, it belongs to Hindustan, Java, or Persia.

1. The general style of the characters on coins of Hindustan may be learned from an inspection of Nos. 1, 2, 4, 5, and 6, of plate XVI. These are all, except the first, issues of the British East India Company, coined at the mints of Calcutta, Madras, and Bombay. Those of Calcutta bear the name of the neighbouring city of Morshedabad, those of Madras are stamped as of Arcot, and those of Bombay as of Surat. The imprint of the mint is to be found at the bottom of the reverse of the coin. By comparing the numbers just stated with the following characters, the reader will perceive the distinction.

| ENGLISH NAME. | CHARACTER ON THE COIN. | TYPOGRAPHIC FORM. | EQUIVALENT IN OUR LETTERS. |
|---------------|------------------------|-------------------|----------------------------|
| Morshedabad. | مرشد آباد | مرشد آباد | Morshedabad. |
| Arcot. | ارکات | ارکات | Arcot. |
| Surat. | سورت | سورت | Surat. |

Some of these coins are dated, others are not; but the dates are not to be depended upon, as has already been shown, in the description of Plate XVI.

The gold pagodas and silver fanams of the south of India may always be known by their shape, being small and lumpy. No. 8, Plate XVI. is a specimen.

2. The coins of the Dutch East India Company in Java, bore Arabic impressions previous to the restoration in 1816. (See *Malay Archipelago*.) They may be known by the anomaly of bearing a Christian date, and in European figures. See Nos. 12 and 14, Plate XVI.

3. The coins of Persia may generally be recognised by the heavy, semicircular characters, in close succession, which bear an unmeaning aspect to a European eye, and which are exemplified in Nos. 10 and 11, Plate XVI. The date, (when not omitted,) is in exceedingly small characters.

In respect to the coins of China and Japan, nothing need be added here to what has been said under those heads respectively; in connexion with which, an inspection of Nos. 15 and 16, Plate XVI. will be of service.

APPENDIX.

STATISTICS OF COINAGE.

1. UNITED STATES.

| | GOLD. | SILVER. | TOTAL. |
|--------------|-------------|-------------|-------------|
| 1793 to 1800 | \$1,014,290 | \$1,440,455 | \$2,454,745 |
| 1801 to 1810 | 3,250,745 | 3,569,165 | 6,819,910 |
| 1811 to 1820 | 3,166,510 | 5,970,811 | 9,137,321 |
| 1821 to 1830 | 1,903,090 | 16,781,047 | 18,684,137 |
| 1831 | 714,270 | 3,175,600 | 3,889,870 |
| 1832 | 798,435 | 2,579,000 | 3,377,435 |
| 1833 | 978,550 | 2,759,000 | 3,737,550 |
| 1834 | 3,954,270 | 3,415,002 | 7,369,272 |
| 1835 | 2,186,175 | 3,443,003 | 5,629,178 |
| 1836 | 4,135,700 | 3,606,100 | 7,741,800 |
| 1837 | 1,148,305 | 2,096,010 | 3,244,315 |
| 1838 | 1,809,595 | 2,333,243 | 4,142,838 |
| 1839 | 1,355,885 | 2,189,296 | 3,545,181 |
| 1840 | 1,675,302 | 1,726,703 | 3,402,005 |
| 1841 | 1,091,598 | 1,132,750 | 2,224,348 |
| | 29,182,720 | 56,217,185 | 85,399,905 |

The mint at Philadelphia was the only one in operation until 1838. From that year to 1841, both inclusive, the amount of coinage at the mint and its branches was as follows :

| | GOLD. | SILVER. | TOTAL. |
|---------------------------------|-------------|-------------|--------------|
| Mint at Philadelphia | \$4,581,175 | \$5,848,489 | \$10,429,664 |
| Branch mint at New Orleans | 326,190 | 1,533,503 | 1,859,693 |
| Branch mint at Charlotte, N. C. | 507,025 | | 507,025 |
| Branch mint at Dahlonga, Geo. | 517,990 | | 517,990 |
| Total, 1838-41 | 5,932,380 | 7,381,992 | 13,314,372 |

STATISTICS OF COINAGE.

The whole amount of coinage *in pieces*, from 1793 to 1841, at the mint and branches, has been as follows :

| GOLD. | PIECES. | VALUE. |
|-------------------------|-------------|---------------|
| Eagles | 291,009 | \$2,910,090 |
| Half eagles | 4 700,257 | 23,501,285 |
| Quarter eagles | 1,108,538 | 2,771,345 |
| SILVER. | | |
| Dollars | 1,674,822 | 1,674,822 |
| Half dollars | 97,895,662 | 48,947,831 |
| Quarter dollars | 8,200,502 | 2,050,125 50 |
| Dimes | 23,765,325 | 2,376,532 50 |
| Half dimes | 23,357,478 | 1,167,873 90 |
| | 160,993,593 | 85,399,904 90 |

The amount of copper coinage in the same period, was 89,439,030 cents, and 7,440,713 half cents, altogether of the value of \$931,503 86 ; which was all coined at Philadelphia.

No eagles were coined from 1805 to 1837 inclusive. No half eagles in 1816 and 1817. No quarter eagles before 1796, nor in 1800-01, nor from 1809 to 1823, except in 1821, nor in 1828 and 1841. No dollars from 1806 to 1838, except 1000 in 1836. No half dollars from 1797 to 1800, nor in 1815. No quarter dollars before 1796, none from 1798 to 1803, none from 1808 to 1814, and none in 1817, 1824, 1826, 1829 and 1830. No dimes before 1796, none in 1799, 1806, 1808, 1812, 1813, 1815 to 1819, 1824, and 1826. No half dimes in 1798, 1799, 1804, and 1806 to 1828. No cents (except a few specimen pieces,) in 1815 and 1823. No half cents in 1798, 1801, 1812 to 1824, 1827, 1830 and 1832, and none since 1836.

2. MEXICO.

| | GOLD. | SILVER. | TOTAL. |
|--------------------|--------------|---------------|---------------|
| Ten years, 1801-10 | \$11,020,000 | \$216,220,000 | \$227,240,000 |
| do. 1811-20 | 6,030,000 | 106,130,000 | 112,160,000 |
| do. 1821-30 | 3,680,000 | 96,080,000 | 99,760,000 |
| 1831 | No returns. | 11,720,000 | |
| 1832-33 | No returns. | No returns. | |
| 1834 | 210,000 | 11,830,000 | 12,040,000 |
| 1835 | 350,000 | 11,650,000 | 12,000,000 |
| 1836 | 570,000 | 11,480,000 | 12,050,000 |
| 1837 | 380,000 | 11,230,000 | 11,610,000 |

For a long term of years, previous to the Revolution, the annual coinage averaged nearly 23 millions of dollars. From the era just named, which had its commencement in 1810, the sum has been greatly reduced. Indeed, although the independence of the nation has long been fully established, yet the ever disturbed state of political affairs produces an effect upon the mints and mines, quite as depressive as was the war of the revolution. The annual coinage of late years is about 12 millions of dollars.

There are at present, seven mints in operation. As there is a characteristic difference in the value of their coins, it will be interesting to know in what proportion they severally contribute to the annual sum of Mexican coinage. The returns of 1836 and 1837 are here given.

| MINTS. | 1836. | | | 1837. | | |
|-------------|----------|-----------|-----------|----------|-----------|-----------|
| | GOLD. | SILVER. | TOTAL. | GOLD. | SILVER. | TOTAL. |
| Mexico | \$20,000 | \$734,000 | \$754,000 | \$10,000 | \$516,000 | \$526,000 |
| Zacatecas | None | 5,460,000 | 5,460,000 | None | 5,238,000 | 5,238,000 |
| Guanajuato | 171,000 | 2 341,000 | 2,512,000 | 151,000 | 2,857,000 | 3,008,000 |
| Potosi | None | 1,099,000 | 1,099,000 | None | 1,111,000 | 1,111,000 |
| Durango | 359,000 | 1,063,000 | 1,422,000 | 207,000 | 721,000 | 928,000 |
| Guadalajara | 23,000 | 561,000 | 584,000 | 13,000 | 567,000 | 580,000 |
| Chihuahua | None | 224,000 | 224,000 | None | 225,000 | 225,000 |

It appears then that they rank in the following order: 1. Zacatecas, 2. Guanajuato, 3. Durango, 4. Potosi, 5. Mexico, 6. Guadalajara, 7. Chihuahua.*

3. PERU.†

| | GOLD. | SILVER. | TOTAL. |
|---------------------|-------------|--------------|--------------|
| Ten years, 1801-10 | \$3,216,400 | \$42,500,000 | \$45,716,400 |
| do. 1811-20 | 5,593,700 | 54,655,000 | 60,248,700 |
| do. 1821-30 | 1,294,700 | 15,435,700 | 16,730,400 |
| Four years, 1831-34 | 401,700 | 11,400 | 413,100 |
| 1835-36 | No returns. | No returns. | |
| 1837 | 120,000 | 2,564,000 | 2,684,000 |

* The order stated in page 79 is slightly in error. The above is taken from the British "Tables of Revenue," &c.

† Compiled from the "Tables of Revenue," &c., and a recent letter from Mr. Pickett, U. S. Chargé d'Affaires at Lima.

STATISTICS OF COINAGE.

PERU (*Continued*).

| | GOLD. | SILVER. | TOTAL. |
|------|------------|------------|-----------|
| 1838 | No returns | No returns | |
| 1839 | None | 2,406,200 | 2,406,200 |
| 1840 | None | 3,104,000 | 3,104,000 |
| 1841 | None | 2,788,800 | 2,788,800 |

The foregoing returns for 1839 to 1841 do not include the coinage at the mints of Cuzco and Arequipa. At the former, the annual amount is supposed to be about one million of dollars—one third of which is gold ; at the latter, the amount in 1838 was near one million, but does not now reach \$100,000 annually.

The largest annual coinage in Peru, in the past century, was, of gold, in 1758, \$1,170,000 ; of silver, in 1794, \$5,304,000.

4. CHILI.*

| | GOLD. | SILVER. | TOTAL. |
|--------------------|-------------|-------------|-------------|
| Ten years, 1811–20 | \$6,171,800 | \$3,527,000 | \$9,698,800 |
| Do. 1821–30 | 1,694,000 | 350,295 | 2,044,295 |
| 1831 | None. | 47,850 | 47,850 |
| 1832 | 192,440 | 37,950 | 230,390 |
| 1833 | 418,336 | 84,150 | 502,486 |
| 1834 | 522,240 | 44,550 | 566,790 |
| 1835 | None. | 3,300 | 3,300 |
| 1836 | 472,464 | No return. | 472,464 |

The largest amount of gold coined, for many years, was in 1810, \$865,000 ; of silver, in 1817, \$535,000.

5. BOLIVIA.

| | GOLD. | SILVER. | TOTAL. |
|--------------------|-------------|--------------|--------------|
| Ten years, 1801–10 | \$5,096,000 | \$30,772,500 | \$35,868,500 |
| Do. 1811–20 | 125,936 | 20,542,500 | 20,668,436 |
| Do. 1821–30 | 703,120 | 15,006,750 | 15,709,870 |

* The statements for Chili and Bolivia are compiled from the British "Tables of Revenue," &c.

BOLIVIA (*Continued*).

| | GOLD. | SILVER. | TOTAL. |
|------|---------|-----------|-----------|
| 1831 | 122,944 | 1,815 | 124,759 |
| 1832 | 148,512 | 1,815 | 150,327 |
| 1833 | 99,824 | 1,897 | 101,721 |
| 1834 | 80,240 | 1,898 | 82,138 |
| 1835 | 184,144 | 1,897 | 186,041 |
| 1836 | 88,000 | 1,947,000 | 2,035,000 |
| 1837 | 198,000 | 2,070,000 | 2,268,000 |

The largest gold coinage for many years past, was in 1805, \$785,000 ; of silver, in 1796, \$4,274,000.

6. GREAT BRITAIN.

The gold coinage, for some years previous to the monetary law of 1816, was nearly in a state of suspension ; in the three years of 1809, 1810, and 1811, the amount was about £300,000, annually, and in 1813, £520,000. In the three years following, there was no gold coined. There was no silver coinage, except Bank tokens, from 1788 to 1815. The following tables commence with the year 1816, and extend to 1840 inclusive.

| | GOLD. | SILVER. | TOTAL. |
|---------------------|------------|------------|-------------|
| Five years, 1816-20 | £8,090,800 | £6,932,800 | £15,023,600 |
| Do. 1821-25 | 24,283,300 | 1,450,000 | 25,733,300 |
| Do. 1826-30 | 14,252,300 | 766,300 | 15,018,600 |
| Do. 1831-35 | 6,737,500 | 613,400 | 7,350,900 |
| 1836 | 1,787,800 | 497,700 | 2,285,500 |
| 1837 | 1,253,100 | 75,250 | 1,328,350 |
| 1838 | 2,855,400 | 173,850 | 3,029,250 |
| 1839 | 504,300 | 390,450 | 894,750 |
| 1840 | None. | 207,700 | 207,700 |
| | 59,764,500 | 11,107,450 | 70,871,950 |

The copper coinage from 1816 to 1836 was £180,107.

The largest annual amount of gold coinage was in 1821, when it reached the prodigious sum of £9,520,758, equal to \$46,270,000. In 1819, there was only the sum of £3574. No gold was coined in 1816 and 1840.

The largest amount in silver was in 1817, £2,436,298, equal to \$10,622,000. In the three years of 1830, 1832, and 1833, the annual sum was only about £150. The variation in the yearly amount of labour is probably as great as at any mint in the world.

The following table shows the total amount of coinage *in pieces*, from 1816 to 1840.*

| GOLD. | PIECES. | VALUE. |
|-----------------------------|-------------|------------|
| Double sovereigns . . . | 16,119 | £32,238 |
| Sovereigns | 55,468,389 | 55,468,389 |
| Half sovereigns | 8,527,681 | 4,263,840 |
| SILVER. | | |
| Crowns | 1,849,905 | 462,476 |
| Half crowns | 31,438,434 | 3,929,804 |
| Shillings | 101,645,280 | 5,082,264 |
| Sixpences | 58,324,595 | 1,458,115 |
| Fourpences | 10,371,058 | 172,850 |
| Three, two, and one penny . | | 2,190 |

7. FRANCE.

| | |
|--|---------------------|
| The coinage of gold from 1726 to 1780, was | 957,200,000 livres. |
| “ 1781–85, estimated† | 85,000,000 “ |
| “ 1786–94 | 738,257,000 “ |

1,780,457,000

The coinage of silver from 1726 to 1791, was 1,966,402,000 livres.‡

There was coined in 30 and 15 sous pieces, (1791) 25,000,000 francs.

The decimal coinage previous to 1803 is not ascertained.

| | GOLD. | SILVER. | TOTAL. |
|-------------------------------|-----------------|-----------------|-------------------|
| Type of Napoleon, 1803–14 | fr. 528,024,440 | fr. 887,830,055 | fr. 1,415,854,495 |
| do. Louis XVIII. 1814–24 | 389,333,060 | 614,830,110 | 1,004,163,170 |
| do. Charles X. 1824–30 | 52,918,920 | 632,511,321 | 685,430,241 |
| do. Louis Philippe I. 1830–40 | 177,367,740 | 1,229,440,566 | 1,406,808,306 |
| | 1,147,644,160 | 3,364,612,052 | 4,512,256,212 |

* Statements from the British mint, part of which were procured by Mr. Stevenson, U. S. minister plenipotentiary.

† Neckar, Finances of France, 1785.

‡ Moniteur, April, 1829.

STATISTICS OF COINAGE.

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AMOUNT OF COINAGE IN PIECES, FROM 1803 to 1840.*

| GOLD. | | VALUE. |
|-------------------------|--|----------------------|
| Forty francs | | fr. 204,431,440 |
| Twenty francs | | 943,212,720 |
| SILVER. | | |
| Five francs | | 3,231,045,450 |
| Two francs | | 57,057,608 |
| One franc | | 50,359,424 |
| Half franc | | 22,534,088 |
| Quarter franc | | 3,615,482 |
| | | <u>4,512,256,212</u> |

AMOUNT OF COINAGE AT THE RESPECTIVE MINTS, 1803 TO 1840.

| MINTS. | GOLD. | SILVER. | TOTAL. |
|-------------|----------------------|----------------------|----------------------|
| Paris | fr. 1,022,920,060 | fr. 1,287,795,645 | fr. 2,310,715,705 |
| Bayonne | 5,047,500 | 93,613,345 | 98,660,845 |
| Bordeaux | 3,001,540 | 120,554,841 | 123,556,381 |
| La Rochelle | 597,240 | 78,911,522 | 79,508,762 |
| Lille | 92,018,120 | 648,414,360 | 740,432,480 |
| Limoges | 554,260 | 107,172,166 | 107,726,426 |
| Lyons | | 152,765,875 | 152,765,875 |
| Marseilles | 81,060 | 98,821,853 | 98,902,913 |
| Nantes | 711,040 | 63,645,791 | 64,356,831 |
| Perpignan | 7,413,500 | 81,630,569 | 89,044,069 |
| Rouen | 7,940,660 | 404,528,280 | 412,468,940 |
| Strasbourg | | 87,993,097 | 87,993,097 |
| Toulouse | 1,345,440 | 133,255,485 | 134,600,925 |
| Gènes | 228,140 | 87,099 | 315,239 |
| Geneva | | 167,993 | 167,993 |
| Rome | 384,500 | 341,125 | 725,625 |
| Turin | 3,597,440 | 2,639,557 | 6,236,997 |
| Utrecht | 1,803,660 | 2,273,449 | 4,077,109 |
| | <u>1,147,644,160</u> | <u>3,364,612,052</u> | <u>4,512,256,212</u> |

* These statements are from the mint of Paris, procured by Gen. Cass, U. S. minister plenipotentiary.

STATISTICS OF COINAGE.

Of the foregoing mints, only those of Paris, Bordeaux, Lille, Lyons, Marseilles, Rouen and Strasbourg are now in operation. Those of Geneva, Rome, Turin and Utrecht were under the empire of Napoleon; they have long since passed out of French jurisdiction.

8. AUSTRIA.

| | GOLD. | SILVER. | TOTAL. |
|----------------------|----------------|-----------------|-----------------|
| Ten years, 1793-1802 | fl. 17,839,288 | fl. 245,823,760 | fl. 263,663,048 |
| do. 1803-12 | 10,659,916 | 104,066,665 | 114,726,581 |
| do. 1813-22 | 24,680,983 | 44,730,490 | 69,411,473 |
| do. 1823-32 | 48,710,569 | 62,246,736 | 110,957,305 |
| 1833 | 7,681,761 | 4,801,214 | 12,482,975 |
| 1834 | 16,708,101 | 3,319,913 | 20,028,014 |
| 1835 | 6,760,328 | 3,068,102 | 9,828,430 |
| 1836 | 5,967,885 | 3,264,164 | 9,232,049 |
| 1837 | 7,213,263 | 3,909,313 | 11,122,576 |
| 1838 | 4,181,536 | 3,088,554 | 7,270,090 |
| 1839 | 4,382,364 | 2,785,702 | 7,168,066 |
| | 154,785,994 | 481,104,613 | 635,890,607 |

AMOUNT OF COINAGE IN PIECES, FROM 1823 TO 1837, BOTH INCLUSIVE.

| | VALUE. |
|--|----------------|
| GOLD—Sovereigns and halves | fl. 36,974,673 |
| Ducats, doubles and quadruples | 56,067,234 |
| SILVER—Rixdollars | 27,189,714 |
| Half dollars, or florins | None. |
| 20 kreutzer pieces | 50,581,999 |
| 10 kreutzer | 974,650 |
| 5 kreutzer | 746,678 |
| 3 kreutzer | 1,109,931 |

The copper coinage, from 1793 to 1818, amounted to 180,918,286 florins. None has been coined since 1818.

9. PRUSSIA.

COINAGE OF TWENTY YEARS, 1821 TO 1840, BOTH INCLUDED.*

| | VALUE. |
|---|------------------|
| Double, single, and half Frederickd'ors, in gold, . . . | thal. 12,034,406 |
| Silver thaler pieces | 28,303,346 |
| Two thaler, or 3½ florin pieccs | 1,950,090 |
| One-sixth thaler pieces | 4,854,105 |
| Billon pieces | 3,147,152 |

The amount of copper coined was 752,273 thalers.

* From the mint at Berlin; procured by Mr. Wheaton, U. S. minister plenipotentiary.

10. SPAIN.

COINAGE OF TWENTY YEARS AT THE MINT OF MADRID, 1822 TO 1841, BOTH INCLUDED.*

| GOLD. | | VALUE IN RS. VELLON. | VALUE IN DOLLARS. |
|--------------------------------------|-------|----------------------|-------------------|
| Pistoles, or $\frac{1}{4}$ doubloons | . . . | 69,338,560 | 8,466,928 |
| SILVER. | | | |
| Dollars, of 20 rs. vellon | . . . | 11,603,660 | 580,183 |
| Half dollars | . . . | 1,190,360 | 59,518 |
| Pistareens, of 4 rs. | . . . | 26,978,516 | 1,348,926 |
| Half pistareens | . . . | 735,706 | 36,785 |
| Reals | . . . | 149,448 | 7,472 |

The annual coinage is of very irregular amount; in 1835 it was about \$1,136,000, and in 1841 only \$134,000.

The coinage of the mint at Seville is not ascertained.

A SUMMARY STATEMENT OF THE AVERAGE ANNUAL AMOUNT OF COINAGE OF GOLD AND SILVER, OF LATE YEARS, IN VARIOUS COUNTRIES; AND THE AMOUNT IN PROPORTION TO THEIR POPULATION.

| COUNTRIES. | ANNUAL COINAGE. | | PRESENT POPULATION. | U. S. CENTS, PER HEAD. |
|------------------------|---------------------|-------------------|---------------------|------------------------|
| | IN THEIR OWN TERMS. | IN U. S. DOLLARS. | | |
| United States | | 4,300,000 | 17,000,000 | 25·3 |
| Mexico | | 12,000,000 | 7,700,000 | 155·8 |
| Colombia | | 2,000,000 | 3,200,000 | 62·5 |
| Peru | | 3,000,000 | 1,700,000 | 176·5 |
| Chili | | 400,000 | 1,500,000 | 26·7 |
| Bolivia | | 1,500,000 | 1,500,000 | 100 |
| Brazil | mlr. 68,000 | 60,000 | 5,000,000 | 1·2 |
| G. Britain and Ireland | £1,500,000 | 7,300,000 | 25,000,000 | 29·2 |
| British India | rs. 30,000,000 | 13,300,000 | 113,000,000 | 11·8 |
| France | fr. 135,000,000 | 25,600,000 | 33,500,000 | 76·4 |
| Sweden† | rxd. 650,000 | 690,000 | 3,000,000 | 23 |
| Denmark‡ | rgd. 240,000 | 128,000 | 2,000,000 | 6·4 |
| Saxony | th. 470,000 | 340,000 | 1,700,000 | 20 |
| Prussia | th. 2,500,000 | 1,800,000 | 13,000,000 | 13·8 |
| Austria | fl. 12,000,000 | 6,000,000 | 34,000,000 | 17·6 |
| Spain§ | rls. 8,000,000 | 400,000 | 12,000,000 | 3·3 |

* From the mint at Madrid; procured by Mr. Vail, U. S. chargé d'affaires.

† Exclusive of Norway.

‡ The coinage at Altona not included.

§ The coinage at Seville assumed as half that of Madrid.

PROPORTION OF COINAGE IN LARGE AND SMALL PIECES.

All the gold coins, and the large silver coins, may be considered as international currency, being liable to be carried beyond the limits of its country; while small silver coin remains at home, to supply the daily traffic. It is interesting to inquire in what proportion these two grand divisions of money, *large* and *small*, are coined in various nations, of late years. The following will be found near the truth.

| | CONSIDERED AS SMALL COIN. | PROPORTION IN VALUE, OF SMALL COIN TO LARGE. |
|---------------------|------------------------------|---|
| United States . . . | Under a half dollar . . . | 1 to 10·6 |
| Great Britain . . . | All the silver* . . . | 1 to 12·6 |
| France . . . | Under five francs . . . | 1 to 10·4 |
| Prussia . . . | Under a thaler . . . | 1 to 5·3 |
| Austria . . . | Under a rixdollar . . . | 1 to 3·3 |

PRODUCTION OF GOLD AND SILVER.

It was intended to offer in the appendix as complete a body of statistics as could be procured, of the amount of precious metals annually raised in the world; and to this end, much information was collected. But after due reflection, it is believed that no satisfactory statement could be given. In some countries a registry is kept of the production, of which a summary notice has been taken under the appropriate heads, in the second chapter. But from the chief mining regions it is impossible to obtain any thing better than vague and contradictory conjectures. Thus in Mexico and Peru, the registers exhibit a certain amount actually raised; but to this is to be added large quantities of bullion exported in a contraband way, of which no near estimate can be made. A high functionary of the Mexican government has rated the annual produce of gold and silver in his country at seventy millions of dollars; while Mr. Ward, from calculations made in 1829 from the best data, was satisfied that it did not exceed eleven millions, since the revolution. At present, the truth probably lies between fourteen and twenty millions; and it is supposed that the production is equal to that of all other countries together.

In respect to the gold region of the United States, it was for a long time uncertain whether the amount sent to the mints was nearly the whole, or only a considerable share of the amount mined. The census of 1840 seems to clear up this question.

It appears that in 1839

| | |
|---|-----------|
| The number of persons employed in gold mining was . . . | 1046 |
| The amount of capital invested, . . . | \$234,300 |
| The amount of gold raised . . . | \$529,500 |

of which Virginia produced \$52,000, North Carolina \$256,000, South Carolina \$37,000, Georgia \$122,000, Alabama \$61,000, Tennessee \$1,500.

In the same year, the amount deposited for coinage was \$385,000. Whence it may be inferred, that about seven tenths of the annual production is converted into coin of the United States. The mining operations were not carried on with much activity until 1830. Since that date, the average annual coinage from that source has been \$555,000. Upon the foregoing basis, the average production has been \$800,000 yearly; but perhaps a safer estimate would be \$700,000.

* The half crown is a large coin, but being legally overvalued (with the other silver coins) to keep it in the country, is properly placed in the table.

TABLE A.

COMPARISON OF VARIOUS MODES OF EXPRESSING THE FINENESS OF GOLD AND SILVER.

| THOUS. | CAR. | 32D. | BRITISH. OZ. DWT. | SPANISH. DIN. GRA. | GERMAN. LOTH. GR. | THOUS. | CAR. | 32D. | BRITISH. OZ. DWT. | SPANISH. DIN. GRA. | GERMAN. LOTH. GR. |
|--------|------|------|----------------------|-----------------------|----------------------|--------|------|------|----------------------|-----------------------|----------------------|
| 650 | 15 | 19 | 7 16 | 7 19 | 10 8 | 833 | 20 | 0 | 10 0 | 10 0 | 13 6 |
| 660 | 15 | 27 | 7 18½ | 7 22 | 10 10 | 834 | 20 | 0 | | | |
| 670 | 16 | 3 | 8 1 | 8 1 | 10 13 | 835 | 20 | 1 | 10 0½ | 10 0½ | |
| 680 | 16 | 10 | 8 3 | 8 4 | 10 16 | 836 | 20 | 2 | | | 13 7 |
| 690 | 16 | 18 | 8 5½ | 8 6½ | 11 1 | 837 | 20 | 3 | 10 1 | 10 1 | |
| 700 | 16 | 25 | 8 8 | 8 9½ | 11 4 | 838 | 20 | 3 | | | |
| 710 | 17 | 1 | 8 10½ | 8 12½ | 11 7 | 839 | 20 | 4 | 10 1½ | 10 1½ | 13 8 |
| 720 | 17 | 9 | 8 13 | 8 15½ | 11 10 | 840 | 20 | 5 | | 10 2 | |
| 730 | 17 | 17 | 8 15 | 8 18 | 11 12 | 841 | 20 | 6 | 10 2 | | |
| 740 | 17 | 24 | 8 17½ | 8 21 | 11 15 | 842 | 20 | 7 | | 10 2½ | |
| 750 | 18 | 0 | 9 0 | 9 0 | 12 0 | 843 | 20 | 7 | 10 2½ | | 13 9 |
| 760 | 18 | 8 | 9 2½ | 9 3 | 12 3 | 844 | 20 | 8 | | 10 3 | |
| 770 | 18 | 15 | 9 5 | 9 5 | 12 6 | 845 | 20 | 9 | 10 3 | 10 3½ | |
| 780 | 18 | 23 | 9 7 | 9 8½ | 12 9 | 846 | 20 | 10 | | | 13 10 |
| 790 | 18 | 31 | 9 9½ | 9 11½ | 12 11 | 847 | 20 | 10 | | 10 4 | |
| 800 | 19 | 7 | 9 12 | 9 14½ | 12 14 | 848 | 20 | 11 | 10 3½ | | |
| 801 | 19 | 7 | | | | 849 | 20 | 12 | | 10 4½ | |
| 802 | 19 | 8 | 9 12½ | 9 15 | | 850 | 20 | 13 | 10 4 | | 13 11 |
| 803 | 19 | 9 | | | 12 15 | 851 | 20 | 13 | | 10 5 | |
| 804 | 19 | 9 | 9 13 | 9 15½ | | 852 | 20 | 14 | 10 4½ | 10 5½ | |
| 805 | 19 | 10 | | | | 853 | 20 | 15 | | | 13 12 |
| 806 | 19 | 11 | 9 13½ | 9 16 | 12 16 | 854 | 20 | 16 | 10 5 | 10 6 | |
| 807 | 19 | 12 | | 9 16½ | | 855 | 20 | 17 | | | |
| 808 | 19 | 12 | 9 14 | | | 856 | 20 | 17 | 10 5½ | 10 6½ | 13 13 |
| 809 | 19 | 13 | | 9 17 | 12 17 | 857 | 20 | 18 | | | |
| 810 | 19 | 14 | 9 14½ | | | 858 | 20 | 19 | 10 6 | 10 7 | |
| 811 | 19 | 15 | | 9 17½ | | 859 | 20 | 20 | | 10 7½ | |
| 812 | 19 | 15 | | | | 860 | 20 | 20 | 10 6½ | | 13 14 |
| 813 | 19 | 16 | 9 15 | 9 18 | 13 0 | 861 | 20 | 21 | | 10 8 | |
| 814 | 19 | 17 | | 9 18½ | | 862 | 20 | 22 | | | |
| 815 | 19 | 18 | 9 15½ | | | 863 | 20 | 23 | 10 7 | 10 8½ | 13 15 |
| 816 | 19 | 19 | | 9 19 | 13 1 | 864 | 20 | 23 | | | |
| 817 | 19 | 19 | 9 16 | | | 865 | 20 | 24 | 10 7½ | 10 9 | |
| 818 | 19 | 20 | | 9 19½ | | 866 | 20 | 25 | | 10 9½ | |
| 819 | 19 | 21 | 9 16½ | 9 20 | 13 2 | 867 | 20 | 26 | 10 8 | | 13 16 |
| 820 | 19 | 22 | | | | 868 | 20 | 27 | | 10 10 | |
| 821 | 19 | 22 | 9 17 | 9 20½ | | 869 | 20 | 27 | 10 8½ | | |
| 822 | 19 | 23 | | | | 870 | 20 | 28 | | 10 10½ | |
| 823 | 19 | 24 | 9 17½ | 9 21 | 13 3 | 871 | 20 | 29 | 10 9 | | 13 17 |
| 824 | 19 | 25 | | | | 872 | 20 | 30 | | 10 11 | |
| 825 | 19 | 25 | 9 18 | 9 21½ | | 873 | 20 | 30 | 10 9½ | 10 11½ | |
| 826 | 19 | 26 | | 9 22 | 13 4 | 874 | 20 | 31 | | | |
| 827 | 19 | 27 | 9 18½ | | | 875 | 21 | 0 | 10 10 | 10 12 | 14 0 |
| 828 | 19 | 28 | | 9 22½ | | 876 | 21 | 1 | | | |
| 829 | 19 | 29 | 9 19 | | 13 5 | 877 | 21 | 1 | 10 10½ | 10 12½ | |
| 830 | 19 | 29 | | 9 23 | | 878 | 21 | 2 | | 10 13 | 14 1 |
| 831 | 19 | 30 | 9 19½ | | | 879 | 21 | 3 | 10 11 | | |
| 832 | 19 | 31 | | 9 23½ | | 880 | 21 | 4 | | 10 13½ | |

| THOUS. | CAR. 32D. | BRITISH. OZ. DWT. | SPANISH. DIN. GRA. | GERMAN. LOTH. GR. | THOUS. | CAR. 32D. | BRITISH. OZ. DWT. | SPANISH. DIN. GRA. | GERMAN. LOTH. GR. |
|--------|-----------|----------------------|-----------------------|----------------------|--------|-----------|----------------------|-----------------------|----------------------|
| 881 | 21 4 | 10 11 $\frac{1}{2}$ | | 14 2 | 932 | 22 12 | | 11 4 $\frac{1}{2}$ | |
| 882 | 21 5 | | 10 14 | | 933 | 22 12 | 11 4 | | |
| 883 | 21 6 | 10 12 | | | 934 | 22 13 | | 11 5 | 14 17 |
| 884 | 21 7 | | 10 14 $\frac{1}{2}$ | | 935 | 22 14 | 11 4 $\frac{1}{2}$ | | |
| 885 | 21 8 | 10 12 $\frac{1}{2}$ | 10 15 | 14 3 | 936 | 22 15 | | 11 5 $\frac{1}{2}$ | |
| 886 | 21 8 | | | | 937 | 22 16 | 11 5 | | |
| 887 | 21 9 | | 10 15 $\frac{1}{2}$ | | 938 | 22 16 | | 11 6 | 15 0 |
| 888 | 21 10 | 10 13 | | 14 4 | 939 | 22 17 | 11 5 $\frac{1}{2}$ | 11 6 $\frac{1}{2}$ | |
| 889 | 21 11 | | 10 16 | | 940 | 22 18 | | | |
| 890 | 21 11 | 10 13 $\frac{1}{2}$ | | | 941 | 22 19 | 11 6 | 11 7 | 15 1 |
| 891 | 21 12 | | 10 16 $\frac{1}{2}$ | | 942 | 22 19 | | | |
| 892 | 21 13 | 10 14 | 10 17 | 14 5 | 943 | 22 20 | 11 6 $\frac{1}{2}$ | 11 7 $\frac{1}{2}$ | |
| 893 | 21 14 | | | | 944 | 22 21 | | 11 8 | 15 2 |
| 894 | 21 14 | 10 14 $\frac{1}{2}$ | 10 17 $\frac{1}{2}$ | | 945 | 22 22 | 11 7 | | |
| 895 | 21 15 | | | | 946 | 22 22 | | 11 8 $\frac{1}{2}$ | |
| 896 | 21 16 | 10 15 | 10 18 | 14 6 | 947 | 22 23 | | | |
| 897 | 21 17 | | | | 948 | 22 24 | 11 7 $\frac{1}{2}$ | 11 9 | 15 3 |
| 898 | 21 18 | 10 15 $\frac{1}{2}$ | 10 18 $\frac{1}{2}$ | | 949 | 22 25 | | | |
| 899 | 21 18 | | 10 19 | | 950 | 22 25 | 11 8 | 7 9 $\frac{1}{2}$ | |
| 900 | 21 19 | 10 16 | | 14 7 | 951 | 22 26 | | 11 10 | 15 4 |
| 901 | 21 20 | | 10 19 $\frac{1}{2}$ | | 952 | 22 27 | 11 8 $\frac{1}{2}$ | | |
| 902 | 21 21 | 10 16 $\frac{1}{2}$ | | | 953 | 22 28 | | 11 10 $\frac{1}{2}$ | |
| 903 | 21 21 | | 10 20 | 14 8 | 954 | 22 29 | 11 9 | | |
| 904 | 21 22 | 10 17 | | | 955 | 22 29 | | 11 11 | 15 5 |
| 905 | 21 23 | | 10 20 $\frac{1}{2}$ | | 956 | 22 30 | 11 9 $\frac{1}{2}$ | | |
| 906 | 21 24 | 10 17 $\frac{1}{2}$ | 10 21 | | 957 | 22 31 | | 11 11 $\frac{1}{2}$ | |
| 907 | 21 24 | | | 14 9 | 958 | 23 0 | 11 10 | 11 12 | 15 6 |
| 908 | 21 25 | 10 18 | 10 21 $\frac{1}{2}$ | | 959 | 23 1 | | | |
| 909 | 21 26 | | | | 960 | 23 1 | 11 10 $\frac{1}{2}$ | 11 12 $\frac{1}{2}$ | |
| 910 | 21 27 | 10 18 $\frac{1}{2}$ | 10 22 | 14 10 | 961 | 23 2 | | | 15 7 |
| 911 | 21 28 | | 10 22 $\frac{1}{2}$ | | 962 | 23 3 | | 11 13 | |
| 912 | 21 28 | | | | 963 | 23 3 | 11 11 | | |
| 913 | 21 29 | 10 19 | 10 23 | | 964 | 23 4 | | 11 13 $\frac{1}{2}$ | |
| 914 | 21 30 | | | 14 11 | 965 | 23 5 | 11 11 $\frac{1}{2}$ | 11 14 | 15 8 |
| 915 | 21 31 | 10 19 $\frac{1}{2}$ | 10 23 $\frac{1}{2}$ | | 966 | 23 6 | | | |
| 916 | 21 31 | | | | 967 | 23 7 | 11 12 | 11 14 $\frac{1}{2}$ | |
| 917 | 22 0 | 11 0 | 11 0 | 14 12 | 968 | 23 7 | | | 15 9 |
| 918 | 22 1 | | 11 0 $\frac{1}{2}$ | | 969 | 23 8 | 11 12 $\frac{1}{2}$ | 11 15 | |
| 919 | 22 2 | 11 0 $\frac{1}{2}$ | | | 970 | 23 9 | | 11 15 $\frac{1}{2}$ | |
| 920 | 22 2 | | 11 1 | 14 13 | 971 | 23 10 | 11 13 | | |
| 921 | 22 3 | 11 1 | | | 972 | 23 10 | | 11 16 | 15 10 |
| 922 | 22 4 | | 11 1 $\frac{1}{2}$ | | 973 | 23 11 | 11 13 $\frac{1}{2}$ | | |
| 923 | 22 5 | 11 1 $\frac{1}{2}$ | | 14 14 | 974 | 23 12 | | 11 16 $\frac{1}{2}$ | |
| 924 | 22 6 | | 11 2 | | 975 | 23 13 | 11 14 | | 15 11 |
| 925 | 22 6 | 11 2 | 11 2 $\frac{1}{2}$ | | 976 | 23 13 | | 11 17 | |
| 926 | 22 7 | | | | 977 | 23 14 | 11 14 $\frac{1}{2}$ | 11 17 $\frac{1}{2}$ | |
| 927 | 22 8 | 11 2 $\frac{1}{2}$ | 11 3 | 14 15 | 978 | 23 15 | | | 15 12 |
| 928 | 22 9 | | | | 979 | 23 16 | 11 15 | 11 18 | |
| 929 | 22 9 | 11 3 | 11 3 $\frac{1}{2}$ | | 980 | 23 17 | | | |
| 930 | 22 10 | | | | 981 | 23 17 | 11 15 $\frac{1}{2}$ | 11 18 $\frac{1}{2}$ | |
| 931 | 22 11 | 11 3 $\frac{1}{2}$ | 11 4 | 14 16 | 982 | 23 18 | | | 15 13 |

| THOUS. | CAR. 32D. | BRITISH. OZ. OWT. | SPANISH. DIN. GRA. | GERMAN. LOTH. GR. | THOUS. | CAR. 32D. | BRITISH. OZ. DW.T. | SPANISH. DIN. GRA. | GERMAN. LOTH. GR. |
|--------|-----------|----------------------|-----------------------|----------------------|--------|-----------|-----------------------|-----------------------|----------------------|
| 983 | 23 19 | 11 16 | 11 19 | | 992 | 23 26 | 11 18 | | |
| 984 | 23 20 | | 11 19½ | | 993 | 23 27 | | 11 22 | 15 16 |
| 985 | 23 20 | 11 16½ | | | 994 | 23 27 | 11 18½ | | |
| 986 | 23 21 | | 11 20 | 15 14 | 995 | 23 28 | | 11 22½ | |
| 987 | 23 22 | | | | 996 | 23 29 | 11 19 | | 15 17 |
| 988 | 23 23 | 11 17 | 11 20½ | | 997 | 23 30 | | 11 23 | |
| 989 | 23 23 | | | 15 15 | 998 | 23 30 | 11 19½ | 11 23½ | |
| 990 | 23 24 | 11 17½ | 11 21 | | 999 | 23 31 | | | |
| 991 | 23 25 | | 11 21½ | | 1000 | 24 0 | 12 0 | 12 0 | 16 0 |

TABLE B.

VALUE IN U. S. MONEY, OF SILVER AND GOLD, OF STANDARD FINENESS (900 THOUS.), FROM 1 TO 100 OUNCES TROY.

| OZS. | SILVER. OOLLS. CTS. | GOLD. OOLLS. CTS. | OZS. | SILVER. OOLLS. CTS. | GOLD. OOLLS. CTS. |
|------|------------------------|----------------------|------|------------------------|----------------------|
| 1 | 1 16·363 | 18 60·465 | 31 | 36 07·272 | 576 74·419 |
| 2 | 2 32·727 | 37 20·930 | 32 | 37 23·636 | 595 34·884 |
| 3 | 3 49·090 | 55 81·395 | 33 | 38 40·000 | 613 95·349 |
| 4 | 4 65·454 | 74 41·860 | 34 | 39 56·363 | 632 55·814 |
| 5 | 5 81·818 | 93 02·325 | 35 | 40 72·727 | 651 16·279 |
| 6 | 6 98·181 | 111 62·791 | 36 | 41 89·090 | 669 76·744 |
| 7 | 8 14·545 | 130 23·255 | 37 | 43 05·454 | 688 37·209 |
| 8 | 9 30·909 | 148 83·721 | 38 | 44 21·818 | 706 97·674 |
| 9 | 10 47·272 | 167 44·186 | 39 | 45 38·181 | 725 58·139 |
| 10 | 11 63·636 | 186 04·651 | 40 | 46 54·545 | 744 18·604 |
| 11 | 12 80·000 | 204 65·116 | 41 | 47 70·909 | 762 79·069 |
| 12 | 13 96·363 | 223 25·581 | 42 | 48 87·272 | 781 39·535 |
| 13 | 15 12·727 | 241 86·046 | 43 | 50 03·636 | 800 00·000 |
| 14 | 16 29·090 | 260 46·511 | 44 | 51 20·000 | 818 60·465 |
| 15 | 17 45·454 | 279 06·977 | 45 | 52 36·363 | 837 20·930 |
| 16 | 18 61·818 | 297 67·442 | 46 | 53 52·727 | 855 81·395 |
| 17 | 19 78·181 | 316 27·907 | 47 | 54 69·090 | 874 41·860 |
| 18 | 20 94·545 | 334 88·372 | 48 | 55 85·454 | 893 02·325 |
| 19 | 22 10·909 | 353 48·837 | 49 | 57 01·818 | 911 62·791 |
| 20 | 23 27·272 | 372 09·302 | 50 | 58 18·181 | 930 23·255 |
| 21 | 24 43·636 | 390 69·767 | 51 | 59 34·545 | 948 83·721 |
| 22 | 25 60·000 | 409 30·232 | 52 | 60 50·909 | 967 44·186 |
| 23 | 26 76·363 | 427 90·698 | 53 | 61 67·272 | 986 04·651 |
| 24 | 27 92·727 | 446 51·163 | 54 | 62 83·636 | 1004 65·116 |
| 25 | 29 09·090 | 465 11·628 | 55 | 64 00·000 | 1023 25·581 |
| 26 | 30 25·454 | 483 72·093 | 56 | 65 16·363 | 1041 86·046 |
| 27 | 31 41·818 | 502 32·558 | 57 | 66 32·727 | 1060 46·511 |
| 28 | 32 58·181 | 520 93·023 | 58 | 67 49·090 | 1079 06·977 |
| 29 | 33 74·545 | 539 53·488 | 59 | 68 65·454 | 1097 67·442 |
| 30 | 34 90·909 | 558 13·953 | 60 | 69 81·818 | 1116 27·907 |

TABLE C.

| OZS. | SILVER. DOLLS. CTS. | GOLD. DOLLS. CTS. | OZS. | SILVER. DOLLS. CTS. | GOLD. DOLLS. CTS. |
|------|------------------------|----------------------|------|------------------------|----------------------|
| 61 | 70 98-181 | 1131 88-372 | 81 | 94 25-454 | 1506 97-674 |
| 62 | 72 14-545 | 1153 48-837 | 82 | 95 41-818 | 1525 58-139 |
| 63 | 73 30-909 | 1172 09-302 | 83 | 96 58-181 | 1544 18-604 |
| 64 | 74 47-272 | 1190 69-767 | 84 | 97 74-545 | 1562 79-069 |
| 65 | 75 63-636 | 1209 30-232 | 85 | 98 90-909 | 1581 39-535 |
| 66 | 76 80-000 | 1227 90-698 | 86 | 100 07-272 | 1600 00-000 |
| 67 | 77 96-363 | 1246 51-163 | 87 | 101 23-636 | 1618 60-465 |
| 68 | 79 12-727 | 1265 11-628 | 88 | 102 40-000 | 1637 20-930 |
| 69 | 80 29-090 | 1283 72-093 | 89 | 103 56-363 | 1655 81-395 |
| 70 | 81 45-454 | 1302 32-558 | 90 | 104 72-727 | 1674 41-860 |
| 71 | 82 61-818 | 1320 93-023 | 91 | 105 89-090 | 1693 02-325 |
| 72 | 83 78-181 | 1339 53-488 | 92 | 107 05-454 | 1711 62-791 |
| 73 | 84 94-545 | 1358 13-953 | 93 | 108 21-818 | 1730 23-256 |
| 74 | 86 10-909 | 1376 74-418 | 94 | 109 38-181 | 1748 83-721 |
| 75 | 87 27-272 | 1395 34-884 | 95 | 110 54-545 | 1767 44-186 |
| 76 | 88 43-636 | 1413 95-349 | 96 | 111 70-909 | 1786 04-651 |
| 77 | 89 60-000 | 1432 55-814 | 97 | 112 87-272 | 1804 65-116 |
| 78 | 90 76-363 | 1451 16-279 | 98 | 114 03-636 | 1823 25-581 |
| 79 | 91 92-727 | 1469 76-744 | 99 | 115 20-000 | 1841 86-047 |
| 80 | 93 09-090 | 1488 37-209 | 100 | 116 36-363 | 1860 46-512 |

N. B. This table may be used for much larger sums, by removing the decimal point, and by additions when required; thus, 100,000 ozs. of silver = \$116,363-63; and an odd number, say 943 ozs., is to be sought in this manner:

$$\begin{array}{r} 940 \text{ ozs.} = \$1093-82 \\ 3 \quad \quad \quad 3-49 \end{array}$$

$$943 = 1097-31$$

TABLE C.

VALUE IN U. S. MONEY, OF ONE OUNCE TROY, OF SILVER OR GOLD, AT DIFFERENT DEGREES OF FINENESS.

| FINESS. THOUS. | SILVER. DOLLS. CTS. | GOLD. DOLLS. CTS. | FINESS. THOUS. | SILVER. DOLLS. CTS. | GOLD. DOLLS. CTS. |
|-------------------|------------------------|----------------------|-------------------|------------------------|----------------------|
| 500 | 64-65 | 10 33-6 | 550 | 71-11 | 11 36-9 |
| 505 | 65-29 | 10 43-9 | 555 | 71-76 | 11 47-3 |
| 510 | 65-94 | 10 54-3 | 560 | 72-40 | 11 57-6 |
| 515 | 66-59 | 10 64-6 | 565 | 73-05 | 11 67-9 |
| 520 | 67-23 | 10 74-9 | 570 | 73-70 | 11 78-3 |
| 525 | 67-88 | 10 85-3 | 575 | 74-34 | 11 88-6 |
| 530 | 68-53 | 10 95-6 | 580 | 74-99 | 11 99-0 |
| 535 | 69-17 | 11 05-9 | 585 | 75-64 | 12 09-3 |
| 540 | 69-82 | 11 16-3 | 590 | 76-28 | 12 19-6 |
| 545 | 70-46 | 11 26-6 | 595 | 76-93 | 12 30-0 |

TABLE C.

| FINENESS. THOUS. | SILVER. DOLLS. CTS. | GOLD. DOLLS. CTS. | FINENESS. THOUS. | SILVER. DOLLS. CTS. | GOLD. DOLLS. CTS. |
|---------------------|------------------------|----------------------|---------------------|------------------------|----------------------|
| 600 | 77.58 | 12 40.3 | 805 | 1 04.08 | 16 64.1 |
| 605 | 78.22 | 12 50.6 | 810 | 1 04.73 | 16 74.4 |
| 610 | 78.87 | 12 61.0 | 815 | 1 05.37 | 16 84.8 |
| 615 | 79.51 | 12 71.3 | 820 | 1 06.02 | 16 95.1 |
| 620 | 80.16 | 12 81.7 | 825 | 1 06.67 | 17 05.4 |
| 625 | 80.81 | 12 92.0 | 830 | 1 07.31 | 17 15.8 |
| 630 | 81.45 | 13 02.3 | 835 | 1 07.96 | 17 26.1 |
| 635 | 82.10 | 13 12.7 | 840 | 1 08.61 | 17 36.4 |
| 640 | 82.75 | 13 23.0 | 845 | 1 09.25 | 17 46.8 |
| 645 | 83.39 | 13 33.3 | 850 | 1 09.90 | 17 57.1 |
| 650 | 84.04 | 13 43.7 | 855 | 1 10.54 | 17 67.4 |
| 655 | 84.69 | 13 54.0 | 860 | 1 11.19 | 17 77.8 |
| 660 | 85.33 | 13 64.3 | 865 | 1 11.84 | 17 88.1 |
| 665 | 85.98 | 13 74.7 | 870 | 1 12.48 | 17 98.4 |
| 670 | 86.63 | 13 85.0 | 875 | 1 13.13 | 18 08.8 |
| 675 | 87.27 | 13 95.3 | 880 | 1 13.78 | 18 19.1 |
| 680 | 87.92 | 14 05.7 | 885 | 1 14.42 | 18 29.4 |
| 685 | 88.57 | 14 16.0 | 890 | 1 15.07 | 18 39.8 |
| 690 | 89.21 | 14 26.3 | 895 | 1 15.72 | 18 50.1 |
| 695 | 89.86 | 14 36.7 | 900 | 1 16.36 | 18 60.5 |
| 700 | 90.50 | 14 47.0 | 905 | 1 17.01 | 18 70.8 |
| 705 | 91.15 | 14 57.4 | 910 | 1 17.66 | 18 81.1 |
| 710 | 91.80 | 14 67.7 | 915 | 1 18.30 | 18 91.5 |
| 715 | 92.44 | 14 78.0 | 920 | 1 18.95 | 19 01.8 |
| 720 | 93.09 | 14 88.4 | 925 | 1 19.59 | 19 12.1 |
| 725 | 93.74 | 14 98.7 | 930 | 1 20.24 | 19 22.5 |
| 730 | 94.38 | 15 09.4 | 935 | 1 20.89 | 19 32.8 |
| 735 | 95.03 | 15 19.4 | 940 | 1 21.54 | 19 43.1 |
| 740 | 95.68 | 15 29.7 | 945 | 1 22.18 | 19 53.5 |
| 745 | 96.32 | 15 40.0 | 950 | 1 22.83 | 19 63.8 |
| 750 | 96.97 | 15 50.4 | 955 | 1 23.47 | 19 74.1 |
| 755 | 97.62 | 15 60.7 | 960 | 1 24.12 | 19 84.5 |
| 760 | 98.26 | 15 71.1 | 965 | 1 24.77 | 19 94.8 |
| 765 | 98.91 | 15 81.4 | 970 | 1 25.41 | 20 05.2 |
| 770 | 99.56 | 15 91.7 | 975 | 1 26.06 | 20 15.5 |
| 775 | 1 00.20 | 16 02.1 | 980 | 1 26.71 | 20 25.8 |
| 780 | 1 00.86 | 16 12.4 | 985 | 1 27.35 | 20 36.2 |
| 785 | 1 01.46 | 16 22.7 | 990 | 1 28.00 | 20 46.5 |
| 790 | 1 02.14 | 16 33.1 | 995 | 1 28.64 | 20 56.8 |
| 795 | 1 02.79 | 16 43.4 | 1000 | 1 29.29 | 20 67.2 |
| 800 | 1 03.43 | 16 53.8 | | | |

N. B. When there is an intermediate degree of fineness, a short calculation is necessary.—For every one-thousandth, add .13 of a cent, per ounce of silver, or 2.07 cents per ounce of gold. Thus an oz. of silver at 992 = \$1,28.26. Do. of gold at 992 = \$20,50.6.

TABLE D.

EQUIVALENT OF U. S. CENTS, IN BRITISH AND FRENCH MONIES.

| U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. | U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. | U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. | U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. |
|-----------------|--------------------|------------------|-----------------|--------------------|------------------|-----------------|--------------------|------------------|-----------------|--------------------|------------------|
| 1 | 0·5 | 05 | 49 | 2 0·1 | 2 62 | 97 | 3 11·8 | 5 18 | 145 | 5 11·5 | 7 75 |
| 2 | 1 | 11 | 50 | 2 0·7 | 2 67 | 98 | 4 0·3 | 5 24 | 146 | 6 0 | 7 80 |
| 3 | 1·5 | 16 | 51 | 2 1·2 | 2 73 | 99 | 4 0·8 | 5 29 | 147 | 6 0·5 | 7 85 |
| 4 | 2 | 21 | 52 | 2 1·7 | 2 78 | 100 | 4 1·3 | 5 34 | 148 | 6 1 | 7 91 |
| 5 | 2·5 | 27 | 53 | 2 2·1 | 2 83 | 101 | 4 1·8 | 5 40 | 149 | 6 1·5 | 7 96 |
| 6 | 2·9 | 32 | 54 | 2 2·6 | 2 89 | 102 | 4 2·3 | 5 45 | 150 | 6 2 | 8 02 |
| 7 | 3·4 | 37 | 55 | 2 3·1 | 2 94 | 103 | 4 2·8 | 5 50 | 151 | 6 2·5 | 8 07 |
| 8 | 3·9 | 43 | 56 | 2 3·6 | 2 99 | 104 | 4 3·3 | 5 56 | 152 | 6 2·9 | 8 12 |
| 9 | 4·4 | 48 | 57 | 2 4·1 | 3 05 | 105 | 4 3·8 | 5 61 | 153 | 6 3·4 | 8 18 |
| 10 | 4·9 | 53 | 58 | 2 4·6 | 3 10 | 106 | 4 4·3 | 5 66 | 154 | 6 3·9 | 8 23 |
| 11 | 5·4 | 59 | 59 | 2 5·1 | 3 15 | 107 | 4 4·8 | 5 72 | 155 | 6 4·4 | 8 28 |
| 12 | 5·9 | 64 | 60 | 2 5·6 | 3 21 | 108 | 4 5·3 | 5 77 | 156 | 6 4·9 | 8 34 |
| 13 | 6·4 | 69 | 61 | 2 6·1 | 3 26 | 109 | 4 5·7 | 5 82 | 157 | 6 5·4 | 8 39 |
| 14 | 6·9 | 75 | 62 | 2 6·6 | 3 31 | 110 | 4 6·2 | 5 88 | 158 | 6 5·9 | 8 44 |
| 15 | 7·4 | 80 | 63 | 2 7 | 3 37 | 111 | 4 6·7 | 5 93 | 159 | 6 6·4 | 8 50 |
| 16 | 7·9 | 85 | 64 | 2 7·5 | 3 42 | 112 | 4 7·2 | 5 99 | 160 | 6 6·9 | 8 55 |
| 17 | 8·4 | 91 | 65 | 2 8 | 3 47 | 113 | 4 7·7 | 6 05 | 161 | 6 7·4 | 8 61 |
| 18 | 8·9 | 96 | 66 | 2 8·5 | 3 53 | 114 | 4 8·2 | 6 10 | 162 | 6 7·9 | 8 66 |
| 19 | 9·4 | 1 02 | 67 | 2 9 | 3 58 | 115 | 4 8·7 | 6 15 | 163 | 6 8·4 | 8 71 |
| 20 | 9·9 | 1 07 | 68 | 2 9·5 | 3 63 | 116 | 4 9·2 | 6 20 | 164 | 6 8·9 | 8 76 |
| 21 | 10·3 | 1 12 | 69 | 2 10 | 3 69 | 117 | 4 9·7 | 6 25 | 165 | 6 9·4 | 8 82 |
| 22 | 10·8 | 1 18 | 70 | 2 10·5 | 3 74 | 118 | 4 10·2 | 6 31 | 166 | 6 9·9 | 8 87 |
| 23 | 11·3 | 1 23 | 71 | 2 11 | 3 79 | 119 | 4 10·6 | 6 36 | 167 | 6 10·3 | 8 92 |
| 24 | 11·8 | 1 28 | 72 | 2 11·5 | 3 85 | 120 | 4 11·1 | 6 41 | 168 | 6 10·8 | 8 98 |
| 25 | 1 0·3 | 1 34 | 73 | 3 0 | 3 90 | 121 | 4 11·6 | 6 47 | 169 | 6 11·3 | 9 03 |
| 26 | 1 0·8 | 1 39 | 74 | 3 0·5 | 3 96 | 122 | 5 0·1 | 6 52 | 170 | 6 11·8 | 9 08 |
| 27 | 1 1·3 | 1 44 | 75 | 3 1 | 4 01 | 123 | 5 0·7 | 6 57 | 171 | 7 0·3 | 9 14 |
| 28 | 1 1·8 | 1 50 | 76 | 3 1·5 | 4 06 | 124 | 5 1·2 | 6 63 | 172 | 7 0·8 | 9 19 |
| 29 | 1 2·3 | 1 55 | 77 | 3 2 | 4 12 | 125 | 5 1·7 | 6 68 | 173 | 7 1·3 | 9 24 |
| 30 | 1 2·8 | 1 61 | 78 | 3 2·5 | 4 17 | 126 | 5 2·1 | 6 73 | 174 | 7 1·8 | 9 30 |
| 31 | 1 3·3 | 1 66 | 79 | 3 2·9 | 4 22 | 127 | 5 2·6 | 6 79 | 175 | 7 2·3 | 9 35 |
| 32 | 1 3·8 | 1 71 | 80 | 3 3·4 | 4 28 | 128 | 5 3·1 | 6 84 | 176 | 7 2·8 | 9 41 |
| 33 | 1 4·3 | 1 76 | 81 | 3 3·9 | 4 33 | 129 | 5 3·6 | 6 89 | 177 | 7 3·3 | 9 46 |
| 34 | 1 4·8 | 1 82 | 82 | 3 4·4 | 4 38 | 130 | 5 4·1 | 6 95 | 178 | 7 3·8 | 9 51 |
| 35 | 1 5·3 | 1 87 | 83 | 3 4·9 | 4 44 | 131 | 5 4·6 | 7 00 | 179 | 7 4·3 | 9 57 |
| 36 | 1 5·7 | 1 92 | 84 | 3 5·4 | 4 49 | 132 | 5 5·1 | 7 05 | 180 | 7 4·8 | 9 62 |
| 37 | 1 6·2 | 1 98 | 85 | 3 5·9 | 4 54 | 133 | 5 5·6 | 7 11 | 181 | 7 5·3 | 9 67 |
| 38 | 1 6·7 | 2 03 | 86 | 3 6·4 | 4 60 | 134 | 5 6·1 | 7 16 | 182 | 7 5·7 | 9 73 |
| 39 | 1 7·2 | 2 08 | 87 | 3 6·9 | 4 65 | 135 | 5 6·6 | 7 21 | 183 | 7 6·2 | 9 78 |
| 40 | 1 7·7 | 2 14 | 88 | 3 7·4 | 4 70 | 136 | 5 7 | 7 27 | 184 | 7 6·7 | 9 83 |
| 41 | 1 8·2 | 2 19 | 89 | 3 7·9 | 4 76 | 137 | 5 7·5 | 7 32 | 185 | 7 7·2 | 9 89 |
| 42 | 1 8·7 | 2 24 | 90 | 3 8·4 | 4 81 | 138 | 5 8 | 7 37 | 186 | 7 7·7 | 9 94 |
| 43 | 1 9·2 | 2 30 | 91 | 3 8·9 | 4 86 | 139 | 5 8·5 | 7 43 | 187 | 7 8·2 | 9 99 |
| 44 | 1 9·7 | 2 35 | 92 | 3 9·4 | 4 92 | 140 | 5 9 | 7 48 | 188 | 7 8·7 | 10 05 |
| 45 | 1 10·2 | 2 41 | 93 | 3 9·9 | 4 97 | 141 | 5 9·5 | 7 53 | 189 | 7 9·2 | 10 10 |
| 46 | 1 10·6 | 2 46 | 94 | 3 10·3 | 5 02 | 142 | 5 10 | 7 59 | 190 | 7 9·7 | 10 15 |
| 47 | 1 11·1 | 2 51 | 95 | 3 10·8 | 5 08 | 143 | 5 10·5 | 7 64 | 191 | 7 10·2 | 10 21 |
| 48 | 1 11·6 | 2 57 | 96 | 3 11·3 | 5 13 | 144 | 5 11 | 7 69 | 192 | 7 10·6 | 10 26 |

TABLE D.

| U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. | U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. | U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. | U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. |
|-----------------|--------------------|------------------|-----------------|--------------------|------------------|-----------------|--------------------|------------------|-----------------|--------------------|------------------|
| 193 | 7 11·1 | 10 31 | 244 | 10 0·3 | 13 05 | 295 | 12 1·5 | 15 76 | 346 | 14 2·6 | 18 49 |
| 194 | 7 11·6 | 10 37 | 245 | 10 0·8 | 13 10 | 296 | 12 2 | 15 82 | 347 | 14 3·1 | 18 54 |
| 195 | 8 0·1 | 10 42 | 246 | 10 1·3 | 13 15 | 297 | 12 2·5 | 15 87 | 348 | 14 3·6 | 18 60 |
| 196 | 8 0·7 | 10 47 | 247 | 10 1·8 | 13 20 | 298 | 12 2·9 | 15 92 | 349 | 14 4·1 | 18 65 |
| 197 | 8 1·2 | 10 53 | 248 | 10 2·3 | 13 25 | 299 | 12 3·4 | 15 98 | 350 | 14 4·6 | 18 71 |
| 198 | 8 1·7 | 10 58 | 249 | 10 2·8 | 13 31 | 300 | 12 3·9 | 16 03 | 351 | 14 5·1 | 18 76 |
| 199 | 8 2·1 | 10 63 | 250 | 10 3·3 | 13 36 | 301 | 12 4·4 | 16 08 | 352 | 14 5·6 | 18 81 |
| 200 | 8 2·6 | 10 69 | 251 | 10 3·8 | 13 41 | 302 | 12 4·9 | 16 14 | 353 | 14 6·1 | 18 86 |
| 201 | 8 3·1 | 10 74 | 252 | 10 4·3 | 13 47 | 303 | 12 5·4 | 16 19 | 354 | 14 6·6 | 18 92 |
| 202 | 8 3·6 | 10 79 | 253 | 10 4·8 | 13 52 | 304 | 12 5·9 | 16 24 | 355 | 14 7 | 18 97 |
| 203 | 8 4·1 | 10 85 | 254 | 10 5·3 | 13 57 | 305 | 12 6·4 | 16 30 | 356 | 14 7·5 | 19 02 |
| 204 | 8 4·6 | 10 90 | 255 | 10 5·7 | 13 63 | 306 | 12 6·9 | 16 35 | 357 | 14 8 | 19 08 |
| 205 | 8 5·1 | 10 96 | 256 | 10 6·2 | 13 68 | 307 | 12 7·4 | 16 41 | 358 | 14 8·5 | 19 13 |
| 206 | 8 5·6 | 11 01 | 257 | 10 6·7 | 13 73 | 308 | 12 7·9 | 16 46 | 359 | 14 9 | 19 18 |
| 207 | 8 6·1 | 11 06 | 258 | 10 7·2 | 13 79 | 309 | 12 8·4 | 16 51 | 360 | 14 9·5 | 19 24 |
| 208 | 8 6·6 | 11 12 | 259 | 10 7·7 | 13 84 | 310 | 12 8·9 | 16 57 | 361 | 14 10 | 19 29 |
| 209 | 8 7 | 11 17 | 260 | 10 8·2 | 13 89 | 311 | 12 9·4 | 16 62 | 362 | 14 10·5 | 19 34 |
| 210 | 8 7·5 | 11 22 | 261 | 10 8·7 | 13 95 | 312 | 12 9·9 | 16 67 | 363 | 14 11 | 19 40 |
| 211 | 8 8 | 11 28 | 262 | 10 9·2 | 14 00 | 313 | 12 10·3 | 16 73 | 364 | 14 11·5 | 19 45 |
| 212 | 8 8·5 | 11 33 | 263 | 10 9·7 | 14 05 | 314 | 12 10·8 | 16 78 | 365 | 15 0 | 19 50 |
| 213 | 8 9 | 11 38 | 264 | 10 10·2 | 14 11 | 315 | 12 11·3 | 16 83 | 366 | 15 0·5 | 19 56 |
| 214 | 8 9·5 | 11 44 | 265 | 10 10·6 | 14 16 | 316 | 12 11·8 | 16 89 | 367 | 15 1 | 19 61 |
| 215 | 8 10 | 11 49 | 266 | 10 11·1 | 14 21 | 317 | 13 0·3 | 16 94 | 368 | 15 1·5 | 19 66 |
| 216 | 8 10·5 | 11 54 | 267 | 10 11·6 | 14 27 | 318 | 13 0·8 | 16 99 | 369 | 15 2 | 19 72 |
| 217 | 8 11 | 11 60 | 268 | 11 0·1 | 14 32 | 319 | 13 1·3 | 17 05 | 370 | 15 2·5 | 19 77 |
| 218 | 8 11·5 | 11 65 | 269 | 11 0·7 | 14 37 | 320 | 13 1·8 | 17 10 | 371 | 15 2·9 | 19 82 |
| 219 | 9 0 | 11 70 | 270 | 11 1·2 | 14 43 | 321 | 13 2·3 | 17 15 | 372 | 15 3·4 | 19 88 |
| 220 | 9 0·5 | 11 76 | 271 | 11 1·7 | 14 48 | 322 | 13 2·8 | 17 21 | 373 | 15 3·9 | 19 93 |
| 221 | 9 1 | 11 81 | 272 | 11 2·1 | 14 53 | 323 | 13 3·3 | 17 26 | 374 | 15 4·4 | 19 99 |
| 222 | 9 1·5 | 11 86 | 273 | 11 2·6 | 14 59 | 324 | 13 3·8 | 17 31 | 375 | 15 4·9 | 20 05 |
| 223 | 9 2 | 11 92 | 274 | 11 3·1 | 14 64 | 325 | 13 4·3 | 17 37 | 376 | 15 5·4 | 20 10 |
| 224 | 9 2·5 | 11 97 | 275 | 11 3·6 | 14 69 | 326 | 13 4·8 | 17 42 | 377 | 15 5·9 | 20 15 |
| 225 | 9 2·9 | 12 02 | 276 | 11 4·1 | 14 75 | 327 | 13 5·3 | 17 47 | 378 | 15 6·4 | 20 20 |
| 226 | 9 3·4 | 12 08 | 277 | 11 4·6 | 14 80 | 328 | 13 5·7 | 17 53 | 379 | 15 6·9 | 20 25 |
| 227 | 9 3·9 | 12 13 | 278 | 11 5·1 | 14 85 | 329 | 13 6·2 | 17 58 | 380 | 15 7·4 | 20 31 |
| 228 | 9 4·4 | 12 18 | 279 | 11 5·6 | 14 91 | 330 | 13 6·7 | 17 63 | 381 | 15 7·9 | 20 36 |
| 229 | 9 4·9 | 12 24 | 280 | 11 6·1 | 14 96 | 331 | 13 7·2 | 17 69 | 382 | 15 8·4 | 20 41 |
| 230 | 9 5·4 | 12 29 | 281 | 11 6·6 | 15 02 | 332 | 13 7·7 | 17 74 | 383 | 15 8·9 | 20 47 |
| 231 | 9 5·9 | 12 34 | 282 | 11 7 | 15 07 | 333 | 13 8·2 | 17 79 | 384 | 15 9·4 | 20 52 |
| 232 | 9 6·4 | 12 40 | 283 | 11 7·5 | 15 12 | 334 | 13 8·7 | 17 85 | 385 | 15 9·9 | 20 57 |
| 233 | 9 6·9 | 12 45 | 284 | 11 8 | 15 18 | 335 | 13 9·2 | 17 90 | 386 | 15 10·3 | 20 63 |
| 234 | 9 7·4 | 12 50 | 285 | 11 8·5 | 15 23 | 336 | 13 9·7 | 17 96 | 387 | 15 10·8 | 20 68 |
| 235 | 9 7·9 | 12 56 | 286 | 11 9 | 15 28 | 337 | 13 10·2 | 18 01 | 388 | 15 11·3 | 20 73 |
| 236 | 9 8·4 | 12 61 | 287 | 11 9·5 | 15 34 | 338 | 13 10·6 | 18 06 | 389 | 15 11·8 | 20 79 |
| 237 | 9 8·9 | 12 66 | 288 | 11 10 | 15 39 | 339 | 13 11·1 | 18 12 | 390 | 16 0·3 | 20 84 |
| 238 | 9 9·4 | 12 72 | 289 | 11 10·5 | 15 44 | 340 | 13 11·6 | 18 17 | 391 | 16 0·8 | 20 89 |
| 239 | 9 9·9 | 12 77 | 290 | 11 11 | 15 50 | 341 | 14 0·1 | 18 22 | 392 | 16 1·3 | 20 95 |
| 240 | 9 10·3 | 12 83 | 291 | 11 11·5 | 15 55 | 342 | 14 0·7 | 18 28 | 393 | 16 1·8 | 21 00 |
| 241 | 9 10·8 | 12 88 | 292 | 12 0 | 15 61 | 343 | 14 1·2 | 18 33 | 394 | 16 2·3 | 21 05 |
| 242 | 9 11·3 | 12 93 | 293 | 12 0·5 | 15 66 | 344 | 14 1·7 | 18 38 | 395 | 16 2·8 | 21 11 |
| 243 | 9 11·8 | 12 99 | 294 | 12 1 | 15 71 | 345 | 14 2·1 | 18 44 | 396 | 16 3·3 | 21 16 |

TABLE D.

| U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. | U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. | U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. | U. S. CENTS. | STERLING. S. D. | FRENCH. F. C. |
|-----------------|--------------------|------------------|-----------------|--------------------|------------------|-----------------|--------------------|------------------|-----------------|--------------------|------------------|
| 397 | 16 3·8 | 21 21 | 423 | 17 4·6 | 22 61 | 449 | 18 5·4 | 23 99 | 475 | 19 6·2 | 25 38 |
| 398 | 16 4·3 | 21 27 | 424 | 17 5·1 | 22 66 | 450 | 18 5·9 | 24 05 | 476 | 19 6·7 | 25 44 |
| 399 | 16 4·8 | 21 32 | 425 | 17 5·6 | 22 71 | 451 | 18 6·4 | 24 10 | 477 | 19 7·2 | 25 49 |
| 400 | 16 5·3 | 21 37 | 426 | 17 6·1 | 22 76 | 452 | 18 6·9 | 24 15 | 478 | 19 7·7 | 25 54 |
| 401 | 16 5·7 | 21 43 | 427 | 17 6·6 | 22 82 | 453 | 18 7·4 | 24 21 | 479 | 19 8·2 | 25 60 |
| 402 | 16 6·2 | 21 48 | 428 | 17 7 | 22 87 | 454 | 18 7·9 | 24 26 | 480 | 19 8·7 | 25 65 |
| 403 | 16 6·7 | 21 53 | 429 | 17 7·5 | 22 92 | 455 | 18 8·4 | 24 31 | 481 | 19 9·2 | 25 70 |
| 404 | 16 7·2 | 21 59 | 430 | 17 8 | 22 98 | 456 | 18 8·9 | 24 37 | 482 | 19 9·7 | 25 76 |
| 405 | 16 7·7 | 21 64 | 431 | 17 8·5 | 23 03 | 457 | 18 9·4 | 24 42 | 483 | 19 10·2 | 25 81 |
| 406 | 16 8·2 | 21 69 | 432 | 17 9 | 23 08 | 458 | 18 9·9 | 24 47 | 484 | 19 10·6 | 25 86 |
| 407 | 16 8·7 | 21 75 | 433 | 17 9·5 | 23 14 | 459 | 18 10·3 | 24 53 | 485 | 19 11·1 | 25 92 |
| 408 | 16 9·2 | 21 80 | 434 | 17 10 | 23 19 | 460 | 18 10·8 | 24 59 | 486 | 19 11·6 | 25 97 |
| 409 | 16 9·7 | 21 85 | 435 | 17 10·5 | 23 24 | 461 | 18 11·3 | 24 64 | 487 | 20 0·1 | 26 02 |
| 410 | 16 10·2 | 21 91 | 436 | 17 11 | 23 30 | 462 | 18 11·8 | 24 69 | 488 | 20 0·7 | 26 08 |
| 411 | 16 10·6 | 21 96 | 437 | 17 11·5 | 23 35 | 463 | 19 0·3 | 24 74 | 489 | 20 1·2 | 26 13 |
| 412 | 16 11·1 | 22 02 | 438 | 18 0 | 23 41 | 464 | 19 0·8 | 24 79 | 490 | 20 1·7 | 26 19 |
| 413 | 16 11·6 | 22 07 | 439 | 18 0·5 | 23 46 | 465 | 19 1·3 | 24 85 | 491 | 20 2·1 | 26 24 |
| 414 | 17 0·1 | 22 12 | 440 | 18 1 | 23 52 | 466 | 19 1·8 | 24 90 | 492 | 20 2·6 | 26 29 |
| 415 | 17 0·7 | 22 18 | 441 | 18 1·5 | 23 57 | 467 | 19 2·3 | 24 96 | 493 | 20 3·1 | 26 34 |
| 416 | 17 1·2 | 22 23 | 442 | 18 2 | 23 62 | 468 | 19 2·8 | 25 01 | 494 | 20 3·6 | 26 40 |
| 417 | 17 1·7 | 22 28 | 443 | 18 2·5 | 23 67 | 469 | 19 3·3 | 25 06 | 495 | 20 4·1 | 26 45 |
| 418 | 17 2·1 | 22 34 | 444 | 18 2·9 | 23 73 | 470 | 19 3·8 | 25 12 | 496 | 20 4·6 | 26 50 |
| 419 | 17 2·6 | 22 39 | 445 | 18 3·4 | 23 78 | 471 | 19 4·3 | 25 17 | 497 | 20 5·1 | 26 56 |
| 420 | 17 3·1 | 22 45 | 446 | 18 3·9 | 23 83 | 472 | 19 4·8 | 25 22 | 498 | 20 5·6 | 26 61 |
| 421 | 17 3·6 | 22 50 | 447 | 18 4·4 | 23 89 | 473 | 19 5·3 | 25 28 | 499 | 20 6·1 | 26 66 |
| 422 | 17 4·1 | 22 55 | 448 | 18 4·9 | 23 94 | 474 | 19 5·7 | 25 33 | 500 | 20 6·6 | 26 72 |

N.B. This table is based upon the *gold* standard of England, and the *silver* standard of France, because gold is the chief circulation in England, and silver in France. The full weight and fineness of the dollar, sovereign, and franc are assumed. By the aid of this table, foreign readers will be able at once to convert our valuations in Chapter II, into their own, of any coin not exceeding five dollars; for larger ones, an addition will be necessary. The table will also be of use for other purposes, to the American reader.

ERRATA.

Page 186, line 6, for "three times" read "twice."

Page 212, opposite Great Britain read 1 to 6·6; France, 1 to 41; Austria, 1 to 2·1. (The period intended is since 1830, as in the preceding table, generally.)

F I N I S.

C. SHERMAN, PRINTER.

S U P P L E M E N T

TO THE

M A N U A L O F C O I N S A N D B U L L I O N.

SEVEN years having elapsed since the publication of the Manual, and the demand for it being still kept up, the authors have deemed it desirable to impart a freshness and increased usefulness to the work, by adding so much of new matter as would bring it down to the present time.

JACOB R. ECKFELDT,
WILLIAM E. DU BOIS,
Assayers U. S. Mint.

Philadelphia, December, 1849.

Under the four headings of NEW RATE OF CHARGES AT THE MINT, RECENT COINS OF THE WORLD, IMPORTANT COUNTERFEITS, and GOLD FROM CALIFORNIA, the ensuing details will be arranged. To which will be added some incidental items, and useful tables.

I. NEW RATE OF CHARGES AT THE MINT.

This article is placed first, not from any superior importance, but because that which immediately follows is materially affected by it.

It is known to all who have made deposits of gold or silver at our Mint for coinage, that the

full equivalent is returned, in coin, without any charge or deduction, provided the metal was brought in a state fit for working, and properly alloyed. This has always been the policy of our government, which regards a national coinage as so much of a national benefit, that it pays the expense of maintaining the mint.

But a great deal of the bullion and foreign coin offered, requires some preparatory treatment to bring it into a fit condition for minting operations. It may be below standard fineness, or above it; or wanting in ductility; or the two precious metals may be mixed, and need parting. The cost of converting all such bullion into standard

metal, fit for coinage, is by law justly devolved upon the depositor or owner; the following being the provision in the Act of Congress of January 18th, 1837, applicable to the case.

"SECT. 18. *And be it further enacted*, That the only subjects of charge by the Mint to the depositor, shall be the following:—For refining, when the bullion is below standard; for toughening, when metals are contained in it which render it unfit for coinage; for copper used for alloy, when the bullion is above standard; for silver introduced into the alloy of gold, and for separating the gold and silver, when these metals exist together in the bullion; and that the rate of these charges shall be fixed, from time to time, by the Director, with the concurrence of the Secretary of the Treasury, so as not to exceed, in their judgment, the actual expense to the Mint of the materials and labour employed in each of the cases aforementioned; and that the amount received from these charges shall be accounted for, and appropriated for defraying the contingent expenses of the Mint."

Under this provision, as is stated in a circular of Dr. Patterson, Director of the Mint, of June, 1849, "the terms upon which Gold and Silver are received for coinage have been re-adjusted, and the following tariff of charges has been adopted, with the concurrence of the Secretary of the Treasury. It presents terms the most liberal that are consistent with the actual cost of the operations, and, it is believed, as advantageous to depositors as those of any other Mint or Refinery."

Without giving a detail of the items of that tariff (printed copies of which may be had at the Mint), we shall here state generally its operation, and the changes effected by it.

Gold bullion, and gold coins, alloyed entirely or chiefly with silver, will be parted much more cheaply, and with a much wider range, than heretofore. This range will generally include the bullion produced from North Carolina, California, New Granada, Africa (except the rings), and a portion of that from Virginia; and in

coins, the pale doubloons, and Bechtler's pieces. To what extent the values of these varieties will thus be affected, will be shown in the succeeding article. It will be for the interest of depositors, however, to avoid the division of their bullion into small parcels. Of gold 935 thousandths fine, it will require over 200 ounces, to make a return of silver; at 870, the usual average of pale doubloons, 45 ounces will be necessary; at 700, the remainder being silver, 14½ ounces will be sufficient to report silver.

In silver bullion, containing gold, and nearly or quite free from copper, the lowest proportion of gold hitherto reported, has been 2½ thousandths; equal to 12 grains in the Spanish assay. The minimum now will be one thousandth (say $4\frac{8}{10}$ grains Spanish); but in such case, to make a clear return of five dollars' worth of gold, as provided in the regulations, there must be not less than 1115 troy ounces (say 1206 ounces Spanish) in the deposit.

If the silver, containing gold, is also coppery, the expense of parting is somewhat increased. The lowest report of gold in such metal will be 1½ thousandths, and at that proportion, the deposit must contain at least 850 ounces, the fineness of the silver being between 701 and 800; if over 800, then 460 ounces will report gold. Gilded plate, Spanish plate, and bars from manufactories, are almost the only articles affected by this part of the tariff. Silver coins, although scarcely ever free from gold, do not contain enough to afford a return to the depositor. A single exception will be noticed in the next division, but it will be shown to be unimportant.

Silver coins under our standard fineness (900 thousandths), will be subjected to a charge proportional to their fineness, but not materially greater than the rate hitherto, except in the baser kinds. From Prussian and German thaler pieces, of 750 fine, the lowest that are usually offered in considerable sums, there will be a deduction for refining, equal to about one cent on each coin, more than the former charge, which was scarcely

more than nominal; consequently the Mint value of those pieces will be reduced by that much. German crowns, 875 fine, will pay about one-third of one cent on each coin. Mexican dollars, on the average, will be charged usually 19 cents, or at most 38 cents, on one thousand pieces; they being almost up to our standard. The value of these and other varieties of coin will, however, be re-stated presently, at the net return under the new regulations.

The kinds of deposits which will not be materially affected by this new table of charges, are, most of the gold from Georgia, Alabama, and Virginia, all from New Mexico, and the African rings; also, all gold coins of Europe, Asia, and Mexico; all silver coins and plate above standard fineness or not much below it; and all silver direct from the mines, that is ductile and free from gold.

II. RECENT COINS OF THE WORLD.

A coin once set in circulation, retains its place and use longer than any other part of the machinery of life, and is extremely slow in going out of fashion; so that the information respecting it, which the dealer, the collector, and the public at large require, does not soon become obsolete. The details in our Manual are therefore as useful as ever, and need only such additions as the lapse of time has called for. New coins, or modifications of old ones, are continually appearing; and in the latter case, it often happens, that the holder finds he has become, if we may so speak, an unconscious sufferer. Old names are retained, but essential properties are altered; and a new progeny of doubloons, dollars, francs, or shillings, is found by an assayer's scrutiny to be something different, most likely inferior, to the older stock. Keeping a steady watch on these, as it is impliedly our duty, we have collected a number of items, which as in our former publication, will be set forth in alphabetical order, and as briefly as possible.

The weight is expressed in grains, and the fineness in thousandth parts.

BELGIUM.—Gold coin, 25 francs; a new denomination; 1848 is the earliest date noticed. It expresses on its reverse the intended standards, 7.915 grammes, (equal to 122.12 troy grains,) 900 fine. The average of 20 pieces tried, is 121.9, fineness 899; value \$4 72. This is a slight depreciation: it ought to be \$4 79, to compare with the former series of Belgian gold coin, or \$4 81 to be equivalent with the French.

We notice also, in silver, a piece of 2½ francs, 1849, weighing 192 grains; fineness (of a single specimen) 901; value 46½ cents.

BOLIVIA.—The dollars from 1841 to 1846, tried in parcels, vary in fineness from 896 to 901; a very large lot gave 897; showing some tendency downward. Weight, varying from 411 to 421, averages 416½; value on a general average, 100.6 cents.

BRITAIN.—The new *florin*, or two-shilling piece, being one-tenth of a pound sterling, is understood to be an advance towards a decimal system. It is not yet fairly in currency; we have been favoured with a single specimen, which is very pretty.

CENTRAL AMERICA.—A recent assay of the gold *escudo* and its half (two-dollar and one-dollar pieces) shows a very marked decline from the standards. The *escudo*, 1844–49, weighs 48; the half, 1825–49, weighs 24; average fineness of both, 809; values respectively, \$1 67, and 83½ cents. The gold dollar ought to be 93½, to bear a due proportion to the doubloon of that country, or 97½, relatively to doubloons generally.

The recent *silver* dollar is very fluctuating in fineness. Those of 1840–42 showed 887 fine; two pieces of 1847, gave 880, and 820. Such uncertainty, and such depreciation, must destroy the character of the coinage. This coin contains *gold* enough to part profitably, under our new regulations, the assay invariably showing not less than 3 thousandths; but it is unavailable, unless the dollars can be obtained at the intrinsic, in-

stead of the nominal, value; which is not to be expected. It is rather a scarce coin.

CHILI.—In the dollar of 1848 we find a variation of weight from 415 to 419; fineness 901½, which is lower than former dates; but the average value is 101 cents.

Until lately, we had no opportunity of testing the fractional coins. The quarter-dollar, 1843-45, weighs only 92, but is 903 fine; the eighth, or *real*, is strictly proportional. Values respectively, 22·4 and 11·2 cents; making a profit to government, and a loss to holders, of about eleven per cent.

CHINA.—The trashy coin of this great empire deserves notice only by way of recreation. In 1842, we quoted the *cash* (tong-tsien) at 800 to the Spanish dollar; in 1847, the equivalent varied from 1200 to 1300,—so hard is it to fasten a value upon that which is valueless. A carpenter or tailor, we are told, receives 160 of them (say 13 cents) for a day's work; of which 60 is required for the daily bread. The coin is extremely convenient for alms-giving, a single piece being the usual quietus for a beggar.

COLOMBIA.—See *Ecuador, New Granada, Venezuela*.

ECUADOR.—The quarter-dollar, or two-real piece, 1847, weighs 104, and is only 675 fine; value 18·9 cents. This depreciation corresponds with what was before noticed in some of the fractional coins of Peru.

FRANCE.—The 20 and 5 franc pieces of the Republic, although entirely changed in face, are the same for weight and fineness as before.

GERMANY.—Here there is no change of standards, but we observe the denomination of double-gulden, not noticed in the Manual, value 79 cents. The whole German issue of the gulden series gives an average of 900 fine by actual assay.

Since the adoption of the new rate of charges at this Mint, the thaler of Northern Germany, 750 fine, yields a return of 67¼ to 68¼ cents, according to wear; the crown, 875 fine, 106 to 107 cents.

HAYTI.—Large quantities of Haytian coin have been recoined here. They are so variable in weight and fineness, that it is not easy to put a definite valuation upon them. They should, however, yield 76 to 78 cents per ounce, taken promiscuously, and unwashed. The piece of 100 centimes, dignified with the name of dollar, bearing the head of President Boyer, is worth about 25 cents upon an average; while the 25 centimes, both of Petion and Boyer, averages 7½ cents. In a large promiscuous deposit of all sizes, we found the average net value of the "dollar" to be 25·7 cents. The coins range from 600 to 625 fine, if free from counterfeits—a baser quality than is to be found in any other coinage, on this side of the Atlantic. But since August last, there has been a new order of things; and coin-collectors and assayers are looking with impatience for the head of Faustin the First.

MEXICO.—In 1842, we averaged recent dollars at 416½ grains, 898 fine, value 100·6 cents. The average fineness has since improved to 899, and value 100·75 cents.

The coins of two new mints, have recently been tried. The doubloon of GUADALUPE Y CALVO, in the state of Durango, 1847, varies in weight from 417 to 420; fineness 869 to 873; average value \$15 69. The dollar of the same mint, 1844-47, averages in weight 420½, in fineness 908, and therefore in value as high as 102·8 cents. This mint began operations in 1844; its distinctive mark is GC, in the usual place in the legend.

The dollar of CULIACAN, in Sinaloa, 1846-48, averages 415½ grains, with a pretty wide variation in individual pieces; fineness 903; value 101 cents. The mint-mark is the letter C.

Mexican dollars are not flowing so abundantly in this direction as in former years, although they are yielding a better return.

MILAN.—The revolution of 1848 produced a new gold coin in Lombardy: it bears on the obverse a female figure with the legend *ITALIA LIBERA, DIO LO VUOLE*—"Italy free, God wills it;" and on the reverse, a wreath, within which is the denomination, *20 LIRE ITALIANE*—"20 Italian livres;" and outside of it the legend, *GOVERNO PROVVISORIO DI LOMBARDIA*. It weighs the same as the 20-franc piece of France, and was evidently meant as a return to the Milanese standard of 1805. The coin is more rare than could be wished: only a single specimen has reached us. Coin-collectors will consider it as a prize, for its singular beauty, and its scarcity; and as the monument of a great event in history.

NETHERLANDS.—The new $2\frac{1}{2}$ -guilders piece was announced in our Manual as having been decreed, but had not then been received. The legal standards are, 25 grammes (385·8 grains) in weight, 945 thousandths in fineness. The actual results, of dates 1842-45, are, 386 grains, 944 fine; value 98·2 cents. The coin often appears here in mixed deposits. It is remarkable for its high grade of fineness; yet it is really a depreciated issue, since, to be equal to the former guilder series, it ought to be worth 100·2 cents.

NEW GRANADA.—This country continues to send a large supply of doubloons to our market; and this makes it the more important to notice a very recent and considerable reduction in the value of the coin. Within a few months a new piece has appeared, with new devices and standards; the latter being expressed on the face of the coin by—"LEI 0,900—PESO 25,8064 G." That is, *fineness*, 900 thousandths; *weight*, so many *grammes*;—a long-drawn fraction, corresponding to 398·31 troy grains. At those rates, the piece would be worth \$15 43·8, and would

avowedly fall below the previous value of the doubloon; but upon actual trial it is still worse, as will be shown directly. This change must have taken place since the beginning of 1849, as we notice pieces of the old style, bearing that date.

But as the doubloons of New Granada are alloyed almost entirely with silver, which is now profitably parted at this Mint, it is necessary to re-state the mint value of the older piece, as well as to give information respecting the new. The silver extracted makes a sensible addition to the values of both kinds; that is, if they are offered in sufficient quantities to meet the requirement, that the net product of a parting must be not less than five dollars; below that limit the operation is not performed. The following terms must therefore be noticed. The doubloon of the old style down to the early part of 1849, weighs on an average $416\frac{1}{2}$ grains, and contains 870 thousandths gold, and about 120 silver; if presented in a quantity less than 44 ounces, its net mint value will be \$15 61; in a larger quantity than that, it will be \$15 71.—The new doubloon, beginning with 1849, weighs 398 grains, and contains in parcels $893\frac{1}{2}$ to 895 thousandths gold, say 894, and of silver about 100; net mint value, in any quantity less than 60 ounces, \$15 31; in a larger quantity, \$15 38.*

The reduction of mint charges for parting, has had a marked effect in sending pale doubloons here for recoinage.

NORWAY.—The immigration from this country brings us considerable parcels of Norwegian and Swedish silver coins. The *dalers* of these two realms, which have the same monarch, were stated in the Manual to be interchangeable as to value: although very different as to their standards. Under our new mint charges, there is now some

* This piece is considerably reduced in diameter, as compared with the old, and is a much neater coin. The dies are apparently of English make, and the head of Liberty, which is in good flesh, greatly resembles that of the British Queen. Collectors of Roman coins will be pleasantly reminded of the *nummi victoriat*.

variation of value, since those of Sweden are of so much lower fineness, and are subjected to a greater charge for refining. They will be noticed in place. The daler, and half, of Norway, average 878 fine (the law calling for only 875, or seven-eighths), and their weights, unworn, are respectively 446, and 223 grains; net mint value of the daler, 105 cents; the half, 52½. This valuation is down to 1848, the latest date we have seen.

PERU.—A new half dollar, with the word PASCO in the legend, 1844, gives an average weight of 203 (variation 200 to 210), fineness 906; value 49½ cents.

PRUSSIA.—The years 1848–49, in other respects unsettled, show no change in the gold coinage. It still maintains its superiority to the other classes of ten and five-thaler pieces. The double-Frederick or ten-thaler, is 903 fine, weighs 206 grains, and is worth \$8 01; practically, an even eight-dollar piece, for us.

RUSSIA.—Five-rouble pieces of 1848–9 show the fineness of 916½; a proof that the assaying and alloying are conducted with admirable exactness; the standard being 916¾. The coin is worth \$3 96.7. As the Russian mint depends, no doubt, upon the Russian mines, and not upon foreign coins, for its material, we felt an interest in examining as to what proportion of *silver* was left in the alloy of the coin; and found only 5½ thousandths. Hitherto we have found no gold coins so nearly desilvered.

SIAM.—We were not sufficiently acquainted with the silver bullets of Siam, to take account of them in the Manual. Some specimens of this curious money have since been examined. They are of different calibers and tolerably well proportioned to each other. The *tical* weighs, without much variation, 235 grains, and is 928 fine; value, 58.7 cents. The *salung*, 61 grains, 929 fine, 15.2 cents. The *prang*, 30 grains, 907

fine, 7.3 cents. Siam may claim the merit of originality in the shape of her coin, which will not admit of piling, and scarcely of lying still; the lively emblem of a true circulating medium.

SWEDEN.—The specie daler of Oscar, 1847–48, is 750 fine, weighs 525 grains, and yields 104.2 cents after mint charges.

TURKEY.—There was a new system of coinage promulgated in 1840, which is noticed in our work; there is a still newer, beginning with 1845. The gold coins are evidently designed to be 22 carats (916.6) fine, as in the neighbouring empire of Russia. By actual assay they are 915 fine; the piece of 100 piastres weighs 111 grains, and is worth \$4 37.4; the piece of 50 piastres, 55½ grains, worth \$2 18.7. In respect to value they compare with the former series of 20, 10, and 5 piastres; though entirely of different standards.

The silver coins are greatly improved in quality, and apparently based upon the Austrian standard of five-sixths (833⅓) fine. They are, the piece of 20 piastres, 371½ grains, 828 fine, net value 82 cents; 10 piastres, 186 grains, 826 fine, 41 cents; and 5 piastres, 92½ grains, 824 fine, 20¼ cents. These coins are well adjusted in weight, and altogether show in their way a great advance in the progress of Turkish civilization. The piastre of commerce seems to be based upon the gold; the exchange in 1845, when these coins were received, rated the piastre at 4.3 cents.

UNITED STATES.—We have no change to record in the standards of our coinage. The code of 1837 has left them, like our form of government, with nothing to desire. There are, however, two new gold coins added to our list by the law of March 3d, 1849, with a limitation to four years from that date. These are the *dollar*, and the *double eagle*, or twenty-dollar piece. The former began to be issued at the principal mint on the 8th of May; since which time to November 1st,

there have been coined at the Philadelphia Mint 571,067 pieces; North Carolina branch mint, 11,634; Georgia branch, 18,126; New Orleans, 205,000; in all 805,827 pieces. The double eagle is so nearly ready, that it will probably be issued before this work is out of press. Both coins were designed by the Engraver of the Mint, Mr. J. B. Longacre.

There are several classes of gold coin, which are not of the United States, but are struck within the national boundaries, and which ought to be noticed in this place. These are the BECHTLER'S coins of *North Carolina*, and the various *California* coins. In the same connexion, it will be proper to give an investigation of the stamped ingots of MOFFAT & Co.

The coins of C. Bechtler are fully described in the Manual (page 160); but since the date of that publication, the mint has passed into the hands of A. Bechtler, as appears on the face of the coin; and there is a marked difference of value between the *C* and *A*. The five-dollar pieces of the former were deficient from one to six per cent. upon the alleged value, averaging three per cent., or \$4 85; the one-dollar pieces were worth 95½ to 97 cents. The five-dollar pieces of the latter vary, from the full alleged value, to a deficit of one and a half per cent. There are no dates on the coins, to enable us to mark the difference; but the pieces assayed in 1843, were better than those (apparently fresh) assayed in 1849. The last and newest lot gave \$4 94 to the five-dollar piece. It is to be borne in mind, that as Bechtler's pieces are alloyed with silver, they will produce about a half of one per cent. more, if offered in sufficient quantity, say 43 ounces. The dollars, as far as tried, are two per cent. below their nominal value.—The coin appears to be considerable in amount, but it is not current in the Middle and Northern States; it is frequently brought to the Mint for re-coining.

We have next to mention four varieties of coin, which have already reached us from California.

1. The mint of "N. G. & N." at San Fran-

cisco, does not profess the same degree of accuracy as Bechtler's, as to fineness. Its claim to be FULL WEIGHT OF HALF EAGLE is proved by a number of trials, the variation not exceeding one grain in any case; but the legend on the reverse, CALIFORNIA GOLD WITHOUT ALLOY, allows a pretty wide range. As far as our assays go, the truth of this stamp is proved; there is no alloy, other than that already introduced by the hand of nature, and which is generally more than sufficient. Three pieces gave severally the fineness of 870, 880, and 892 thousandths; all were within the scope of "California gold." They consequently worth \$4 83, \$4 89, and \$4 95½ respectively, without the silver; and including that, 2½ cents more. As it sometimes happens (not often) that the native gold is above our standard fineness, the proprietors may sometimes put more than five dollars' worth into a coin, but the average will always be in their favour, and protect them from a losing operation. Especially will they keep themselves safe, while gold is held in the market at fifteen and a half, to sixteen dollars an ounce, or even after it shall have risen to a considerably higher valuation.

It is the margin between the market and mint values of grain-gold, which enables this private mint to carry on its work, and keep to its terms. Indeed, when the honesty of the coinage shall have been duly established, it may be found sufficiently accurate for the region to which it belongs, until (as must soon happen) the commercial and legal values of gold shall very nearly coincide.

The coin is neatly executed, and besides the two legends above quoted, bears an eagle, a circle of stars, the date 1849, and the name SAN FRANCISCO. It wears the somewhat brassy tint which belongs to gold alloyed with silver only.

2. The next variety, a five-dollar piece which emanates from the OREGON EXCHANGE COMPANY, is rather the most original and picturesque of the assortment. It bears on one disk the above title, with the inscription "130 GRs. NATIVE GOLD. 5 D." and on the other a Beaver (a good emblem of mining industry), a row of initial letters, and

the date 1849. On the whole, the coinage will no doubt prove agreeable, if it can be well spoken of as to its intrinsic qualities. Hitherto we have had the opportunity of examining only one piece. It weighed $127\frac{1}{2}$ grains, was 878 thousandths fine, and contained only the natural alloy: resulting value, \$4 82; with the silver (in sufficiently large lots) $2\frac{1}{2}$ cents more.

3. Next is a ten-dollar piece of the MINERS' BANK, SAN FRANCISCO, as is stated on the obverse; on the reverse is an eagle, with thirteen stars, and the word CALIFORNIA. It makes no professions, of weight or fineness; only of value. Two pieces have just been tried here, and one other is reported to us from the Branch Mint at New Orleans, assayed by Dr. Hort. The results are as follows:

| | Grs. | Thous. fine. | Base metal. |
|----------------------|-------------------|--------------|-------------|
| First, assayed here, | 268 | 860 | 28 thous. |
| Second, " " | 265 $\frac{1}{2}$ | 871 | 22 " |
| Third, " N. O., | 259 | 866 | 29 " |

A fourth piece weighed here 261 grs.

From this statement it appears, first, that while there is a great want of adjustment in weight, the average in that respect is about $263\frac{1}{2}$ grains, or $5\frac{1}{2}$ over the lawful eagle; next, that the fineness is rather low, averaging only 865, and that the deficiency has been made up by a small addition of copper; next, that we have here the representation of several meltings, or else of one illy mixed, whose range is from 860 to 871 fine, decidedly below the range of California gold; lastly, that though in distinct pieces there may be a scope of intrinsic value (not including the silver parting) from \$9 66 to \$9 92, the apparent average is about \$9 87. This result, if adhered to, may be satisfactory to the citizens of California, showing as it does a deficiency scarcely over $1\frac{1}{2}$ per cent. on the alleged value; but any addition of copper, to the displacement of so much gold, seems unnecessary.

4. The introduction of copper alloy is more marked in the fourth and last variety we have to mention; but here, the due proportion of gold is nearly kept up. This is the ten-dollar piece of

MOFFAT & Co., whose establishment is probably the most extensive and systematic of any.

Four of these pieces have been assayed; three here, and one at the New Orleans Branch Mint.

First, assayed here, 258 grs., 884 thous. gold,
61 " silver,
55 " base metals.

1000.

Second, assayed here, 259 grs., 895 gold,
41 silver,
64 base metals.

1000.

Third, assayed here, 258 grs., 895 gold,
58 silver,
47 base metals.

1000.

Fourth, assayed at New Orleans, 258 grs., 881 gold,
60 silver,
59 base metals.

1000.

A fifth piece weighed here 259 grs.

It should be understood, that of the "base metals" in the alloy, only three or four thousandths are to be set down as native, being chiefly iron; the residue is copper, added by the melter. The average of copper so added, appears to be 56 thousandths, say $1\frac{1}{2}$ per cent.

Of the use of copper as an alloy, and not as a cover for the subtraction of gold, no one will complain, since it is the usage at almost all mints, intended to give the coin a better colour, and to make it harder, and fitter for wear, than if silver alone were used for the mixture. From the foregoing it appears, that while a single piece may be worth \$9 78 to \$9 98, the average value is \$9 88, (the silver not being in sufficient proportion to pay for parting,) which is so near to ten dollars, that the use of copper was evidently with honest intent.

The result was at first so surprising, that only a decided confirmation could satisfy us. It proves, what was not to be expected, that the

CALIFORNIA AND MORMON COINS.



\$ 2 $\frac{1}{2}$, 58 grs. \$ 2.25.



\$ 5, 111 grs., \$ 4.30.



\$ 10, 219 to 224 grs.,
\$ 9.50 to 9.70.



\$ 20, 435 to 453 grs.,
\$ 16.90 to 17.53.



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establishment has gone to the pains and expense of partly refining out the silver from the native gold, in order to the substitution of the other alloying metal.

California gold, in its native state, is not fine enough to bear the addition of $5\frac{1}{2}$ per cent. copper, or we may say, any copper at all, without debasing the coin, and injuring the community. It is already more than sufficiently alloyed, by the hand of nature, with silver, to bring it down to standard; and it was to the last degree unlikely, that copper should have been added, for any other purpose than to swell the profits of the private mint. Unlikely things, however, are sometimes stubbornly true, and this establishment must be exonerated on that score. The metal that they take out of their ten-dollar pieces, is not gold, but silver; and silver, considered merely as an alloy of gold coins, except it can be profitably parted out, goes for no more than copper, in the same predicament. Without feeling bound to account for a matter which does not belong to us, we may suggest, as the most likely motive for reddening the coin with copper, that it is thereby relieved from the pale, almost *ungoldlike* hue, of the native melted gold, and looks more like the veritable eagle of the United States, to whose general aspect it is rather too carefully conformed.

The obverse bears a tolerable imitation of our female head of Liberty, with the name *MOFFAT & Co.* upon the tiara, instead of the word *Liberty*; together with the circle of stars, and the date. On the reverse is the eagle with *TEN DOL.* underneath; and above, the legend *S. M. V. CALIFORNIA GOLD*, occupies about the same space as the words *United States of America*, on the national coin. It is also of the same diameter and thickness as our eagle. So many assimilations, of colour, stamp, and dimension, if they might not lead to a mistake, might nevertheless render the coin more passable.

Upon a review of these varieties of California coins, it will strike any reader with surprise, that in a country where gold is so abundant, and so

much below the general commercial or mint rate, not one of the coins should come up to its professed value. It is not as in North Carolina, where the private coiner has to contend with a near mint, and consequently a full price in market. A profit of two to two and a half dollars, on the ounce, would seem to dispose any manufacturer of coin to err on the side of liberality; or at least to earn a good name for his establishment by giving good measure. The issue of such coins is not illegal, and under existing circumstances, may be salutary, or even dictated by necessity. If we might be allowed to advise a standard, say for the piece of ten dollars, it would be, first, to take the native gold as it comes, and add no alloy. The addition of copper, whatever good purposes it may answer abstractedly, must excite suspicion towards any establishment not regulated by law, or responsible to government; and especially in California, for the simple reason, that where labour is so dear, and the supply of chemicals and other materials so precarious and expensive, it will not be taken for granted that pains are taken to refine out the silver, to make room for copper. Then, taking the native gold, let the pieces, with a pretty accurate adjustment, average eleven pennyweights (264 grains) each. Here would be a good current coin for the gold region, and an acceptable remittance at par to any part of the world, certainly to our states. The individual piece would ordinarily be worth not less than ten dollars, and on the average a few cents over. Its pale colour would be pardonable in the eyes of our dealers in coin and bullion, who, presenting such pieces in sufficient quantities for recoinage at the Mint, would derive an additional profit of about a half of one per cent.

Besides the ten-dollar pieces, the establishment of Messrs. Moffat & Co. issues stamped ingots, intended apparently both for circulation and for commercial remittance, as they are of various sizes, from about nine dollars to two hundred and sixty. They are melted and cast in a very workmanlike manner, generally in close moulds,

making a perfect rectangular bar, without any *sink* at the end. Each bar bears the name of the Company, the alleged fineness in carats, and the value, thus:

| |
|------------------------|
| MOFFAT & Co. |
| 20 $\frac{3}{4}$ CARAT |
| \$16.00 |

and at one side, or on the under side, the weight in pennyweights and grains. A considerable number of small ingots bear the even value of sixteen dollars, as above, and have no weight stamped on them; generally, however, the values are fractional, such as "\$9 43" and "\$256 24."

As to the *accuracy* of the weight, fineness, and value, we have to observe first, that the ingots, as far as tried, are equal to the stamp, in weight; sometimes a little full. A deposit of 181 ounces weighed 44 grains over the stamped weight, an average excess of $\frac{1}{4}$ gr. to the ounce; which is a good adjustment. But the sixteen-dollar ingots are of very inconstant weight; as, for instance, from 18 dwts. to 19 dwts. 4 grs. Next as to fineness: without any very gross deviation, (except in a casual instance,) there is a decided want of accuracy, as well as a want of uniformity in error. The first importation of these bars, in August last, gave a higher fineness than the stamp; thus, one lot stamped $21\frac{5}{8}$ carats, equal to 881.6 thousandths, resulted 893 fine, an error in favour of the receiver of about 23 cents per ounce; another parcel marked $21\frac{7}{8}$, equal to 893.2, gave 899.5. (It were much to be wished that the simple millesimal notation of fineness had been used, instead of the awkward and discarded one of *carats*.)

But in more recent deposits, the error lies the other way. One parcel stamped $21\frac{3}{4}$ carats (906.5), proved to be 887; another, $21\frac{1}{2}$ (896), gave but 883, a deficit of 27 cents per ounce; and a third, of 22 carats (916.6), was only 904. Of the sixteen-dollar ingots, all stamped $20\frac{3}{4}$ (864.6), two have been assayed, and result 850,

and 848. Both were alloyed with copper; the former about $1\frac{1}{2}$ per cent., the latter about 4 per cent.; being the only cases in which we have noticed any other than the natural silver alloy. Those two ingots were worth respectively, \$15 81, and \$15 73.

Lastly, as to the *real value* of the ingots, as compared with the alleged, it is evident from what has been said, that some of them are rated too low, and others too high; the overvalued ones being apparently the more recent. Perhaps the error, in any case, is not such as to affect the sensibilities of a people already flooded with gold; but in the old and impoverished settlements of the East, notice is sure to be taken even of smaller deviations. What has surprised us, both in this case, and that of the private mint in North Carolina, is, that the valuations should be wrong, even upon their own data; being deducible by a simple rule of arithmetic. Every one knows, as a starting-point, that a weight of 258 grains of gold, nine-tenths fine, is by our laws worth ten dollars. Moffat's ingots marked $21\frac{5}{8}$ carats (881.6) were variously calculated, at \$18 10 to \$18 14 per ounce; the proper result, at that fineness, is \$18 22 $\frac{1}{2}$. But perhaps, as in weight and quality, so in value, *de minimis (in auro) non curat California*.

Depositors from that region inform us, that the foregoing varieties of coins and ingots are current there, at their alleged value; but in some cases, especially at the steamer agency, received with a reluctance which is naturally felt towards new kinds of money.

III. RECENT COUNTERFEIT COINS.

The great majority of counterfeiters, new or old, deserve neither to be admired nor feared; and the fact of their obtaining any circulation, proves folly on the one party, as much as roguery upon the other. With this wholesale judgment, we dismiss a multitude of awkward Mexican birds, laughable heads of Liberty, type-metal casts, and villainous compounds of German silver; all of

which are too much kept in countenance by the lingering presence, in our circulation, of the ugly and worn-out coin of Spanish monarehs. There are two or three varieties, however, recently brought to our notice, which deserve a more respectful attention; and these are counterfeits of gold coin only.

1. First may be mentioned, an imitation of the well-known doubloon of Bogota, in New Granada; very well executed as to appearance, but still more respectable on account of the liberal proportion of the right metal. The specimen tried here, of the date 1843, contained 653 thousandths of gold, the remainder being nearly all silver; and the weight being 416 grains, or only a half grain below the average of the true coin: its value was \$11 70. The value of the genuine being (irrespective of silver) about \$15 61, the amount of profit and loss is apparent. The operators needed some advice, which an honest person would not like to give. The piece was detected by its wanting the true colour, which, in such an alloy, no art of pickling can impart. Those who deal in patriot doubloons, have to beware of pieces looking too pale, or too much like fine gold. In this case, the grand test of *weight* was fallacious.

2. A much more important counterfeit, or class of counterfeits, to us, is the imitation of our gold coin, lately brought to light; and which is as interesting to the man of science, as it is dangerous to the commercial dealer. The varieties include the eagle, half-eagle, and quarter-eagle; there is not much danger of a false gold dollar, of that manufacture, for reasons which will be obvious in the examination.

These various counterfeits began to make their appearance in 1847, although some of them bear earlier dates; and they perfectly agree in character. They are of so perfect execution, that strong apprehension was at first entertained of the surreptitious procurement of genuine dies, notwithstanding all precaution in that matter. However, upon a minute inspection, the impression, although entirely "brought up," is not so

sharp and decided as in the genuine coin, and from that circumstance they have exteriorly a family-character by which a practised eye may perhaps single them out. The details of impression correspond to those of the genuine, to the last microscopic particular. The most skilful and deliberate artist in the world, could not take up the graver and make such a fac-simile; their dies must have been transferred from our coin, by some mechanical process, concerning which very little is known, and the less the better.

The coins have rather a dull sound in ringing, but not as if flawed: although they are actually each in three distinct pieces of metal. Some few of them, where the weight is kept up, are thicker than the genuine, and necessarily so; but generally the half-eagles run, as in the good pieces, from 55 to 60 thousandths of an inch, within the raised rim. The diameter is sometimes rather too great. The composition is as follows. A thin planchet of silver (of Spanish standard, as we found by assay) is prepared, so nearly of the right diameter, that the subsequent overlaying of the gold plate at the edge, will make it exact. Two other planchets, of gold, whose quality will be stated directly, are also prepared; one of them is of the right diameter of the projected coin, the other is about a quarter of an inch larger, in diameter. Here are the three pieces which make up the coin. The two gold plates are then soldered upon the silver, the projecting rim of the larger disk of gold is bent up to meet the smaller, and to constitute the edge of the coin, and then the whole is finished by a blow in a coining-press. The suggestion that the coin may have been perfected in an electrotype battery is disproved by several considerations, especially by the conclusive one, that the effects of the *blow* are visible upon the silver planchet, when the gold is lifted off; and the process of *sawing out* a good coin, so as to make use of its two faces to cover a piece of silver, could not have been employed in this case, because the edge of the coin actually appertains to one of the gold surfaces;

and besides, the gold is sometimes of a higher fineness than our standard.*

The eagle, of which we have had but one sample, was not particularly noted, as it came after some others, of the lower denominations.

Of the half-eagle counterfeits, we have had the dates of 1844, 1845, and 1847. Of the quarter-eagle, only the date of 1843 has been shown, and this had the mint-mark, O, of the Branch at New Orleans.

The half-eagle of 1844, weighed 129 grains, just the right weight; the golden part weighed $84\frac{1}{2}$ grains, and was 915 thousandths (about British standard) fine; value of the gold \$3 30. The silver weighed 44 grains, was 897 thousandths fine, and worth 10 cents; whole value of the piece, \$3 40.—Another piece, 1845, was 10 grains light; another of the same date, of which only a part was furnished, gave the assay of $902\frac{1}{4}$ thousandths for the gold on the head side, and $901\frac{1}{4}$ on the eagle side; both higher than our limit, but very near it.—Two other pieces, 1847, were each about 13 grains light; specific gravity of one of them, 14.1. (That of the true coin is 17.2 to 17.5.)

Of the quarter-eagle, no less than five were offered in a single deposit, for recoining; they were severally from one to nine grains light. One piece, however, from another source, was a little over weight; the specific gravity, 12.83; fineness of the gold 915; value of the whole piece about \$1 25.

It only remains to inquire, how these counterfeits are to be detected and avoided. First, it may be said, that to lay down any rules which would protect the careless and indifferent, is out of the

question. Any man who can afford to take a half or quarter-eagle from any but an undoubted source, without *some* attention, can at any rate afford to be cheated out of half its value. And yet the best test we can propose, is altogether an inconvenient one, to any but a bank, broker, or shop-keeper. That test is *the weight*. In every case except one, which has come under our notice, the balance would have settled all doubts. An error of a grain, in an unworn piece, would be conclusive: even worn pieces of our gold coinage are never deficient, on that account, more than one grain and a half. If the counterfeit should happen to be of right weight, then its too great *thickness* would be apparent to a careful examiner.

As the balance is not a very portable or ready apparatus, several instruments have been contrived expressly for the purpose of trying gold coins. We know of none more ready and effectual than one lately invented by Mr. W. M. Snider, machinist, in the employ of the U. S. Mint. Its value is attested by Mr. Parry, clerk in the office of the Assistant Treasurer of the United States at Philadelphia, who has one in constant use. Its merits consist in enabling the experimenter to decide by a single move, as to the weight, diameter, and thickness, of any of the coins in our series; in being so carefully adjusted, as to detect any known counterfeit, by one or other of those measurements; and in a general simplicity of arrangement, which obviates the liability to get out of order.

On the whole, it is difficult to say how far the appearance of this class of counterfeits should alarm the public, and make them shy of a gold currency. It is certainly the most dangerous imitation that has come to our knowledge. Yet when it is considered that in each counterfeit of the half-eagle there is and must be from three to three and a half dollars' worth of precious metal; that the manufacture must require a good deal of machinery, and consummate skill, both artistic and mechanical; that the investment of a considerable capital is requisite, as also a wide organization for pushing the issues quietly into

* This counterfeit is knowingly accounted for in a late newspaper paragraph. The writer says—"The dies, under the present rules [at the U. S. Mint] are all pressed; hence the ease with which they can be counterfeited by any die-sinker. In England and France, the most eminent men in that branch are selected to coin dies, and such is the sharpness and perfection of their dies, that counterfeits are almost an impossibility."—It was from the mints of England and France, that we borrowed the improvement of transferring dies.

circulation, it may be hoped that prudent and competent persons will find it better worth their while to pursue a more honest and honourable calling. The public have an additional security, in respect to gold coins, that they are constantly passing through the various treasuries of government, the banks, and the brokers' offices; by whose vigilance that currency is kept quite or nearly pure.

Since the above was written, we have seen counterfeit half-eagles of Dahlonaga mint (D), of brass gilt, pretty well executed, but very light; date 1843. Also a quarter-eagle, 1846, no mint-mark, of copper and silver, heavily gilt; well-looking, but weighing 48 grains instead of 64½.

IV. GOLD FROM CALIFORNIA.

In the work to which this is a supplement, information was given respecting gold bullion in its various forms, from all the localities whence it came to this Mint; including almost all the mining regions then known, in the world. Since that time, the mines of California have disclosed their unrivalled treasures, and presented a new and abundant stock to operate upon. The history of this discovery and of its progress, reaches the public through every newspaper, and needs no recapitulation here; but whatever is known to us as Assayers, respecting this gold, will now be concisely stated.

We have had opportunities of examining the auriferous product of that country in three forms: first, the very dirt and gravel as it comes up by pick and spade; next the ferruginous black sand, remaining after the earthy matter had been washed out, but containing the gold; lastly (which is the appropriate work of the office), the clean gold itself, either in grains, amalgam, bars, or coins.

The first sample of *ore* was sent us by an officer in the army, during the Mexican war, and in advance of the wonderful rumours; but so perfectly exempt was this considerable invoice of

stones from anything like precious metal, that we might be forgiven for having joined in the general incredulity, by which so many have been deceived, and some belated. Other specimens have since been forwarded for examination by the Hon. Secretary of the Interior, most of which were equally unproductive; disproving at least the common impression, that everything in the gold region is a gangue for gold. One of these, a serpentine rock, contained nothing; another, the slate on which the gold deposits lie, was also free from gold; a third, the usual ferruginous quartz of mining districts, showed only a trace; while a fourth, the deposit of gravelly earth found in the bed or on the margin of a stream, yielded upon various experiments, at the rates of ten to thirty dollars per bushel, or hundred pounds. (The amount taken at each trial, was one kilogramme, over two pounds.)

The most available mode of working was found to be the ordinary one of *washing*, with some aid, at the close, from amalgamation. With a moderate degree of care, washing secures all the gold in the matrix, or brings it into a narrow and manageable compass, for recovery. To prove this, several successive trials were made of the same quantum of earth. All that remained, after the first washing, was found to be of scarcely appreciable amount; as, for instance, when the quantity first extracted was about fifteen grains, the residue, afterwards obtained, was only one-twentieth of a grain. It is not as in our Atlantic mines, where the gold is disseminated in pyritous ores, and often in an invisible powder: where there is a wide difference between the various "yields" of washing, amalgamating, and smelting; and a still wider, between the results obtained in an analyst's laboratory, and those in extended, practical operations. Judging from experiments here, the same cannot be said of the California mining region. What is lost there, is probably not in the washing, but in the subsequent separation of the gold from the *black sand*.

What we have to say respecting the examina-

tion and treatment of the black iron sand, was laid before the public a year ago, in a report to the Hon. Secretary of War. The following is an extract.

In the last place, we have to mention an examination of some samples of sand, interspersed with gold, also forwarded by the War Department. Of this there were two parcels. The first, weighing in all about 8½ pennyweights, was first reduced in bulk by removing the grains of magnetic iron, and then subjected to cupellation, a smelting in the small way. The result of the whole treatment was as follows:

| | |
|---|--------------------------|
| Gold, | 9.8 parts in a thousand. |
| Silver combined with the gold, 1.2 “ “ “ | |
| Protoxide of iron (magnetic), 597.2 “ “ “ | |
| Residue, consisting chiefly of peroxide of iron, | 391.8 “ “ “ |
| | <hr/> 1000. |

This would be 68.75 grains fine gold, or 77.07 grains of gold of native fineness, in a pound avoirdupois of the sand.

The other parcel was treated in two ways, both differing from the former. First, we took a specific quantity, weighed by milligrammes, (equal to about 11½ pennyweights,) and having cleansed it by the magnet, subjected the remainder to a very thorough amalgamation. The amount of fine gold obtained was 12.41 per thousand. Again, the same quantity of sand was thoroughly washed, (more time being taken to it than would be likely to pay in a large operation,) and there resulted 12.05 parts of fine gold per thousand. To give cupellation its due credit, we must remark that this second parcel was evidently the richest to the eye. The specific gravity of the black sand, without the gold, is 4.4, nearly the same as that of simple magnetic iron.

We have nothing to add to this, except to qualify a succeeding sentence, which says:—

It is well known that no mode of treatment, however skilful and scientific, has so far enabled gold-miners to make a near approach, in a large operation, to the result obtained by a delicate assay—that is, not without its costing more than it would be worth.

Such has hitherto been the fact; but we strongly incline to the belief, that a careful manipulation of the black sand, some better *modus* than “blowing it out with a pair of bellows,” and yet equally practicable, will enable the miner to obtain nearly all the gold.

In the last place, it will be interesting to all

parties concerned, to have some particulars about the gold, after it is recovered from yellow earth and black sand, and put up in merchantable shape. It comes here in four forms, as already named. Two of these, *bars* and *coins*, have been discussed under a former head; of a third, namely, *amalgam*, we have had only two deposits, and nothing need be added to what was said of that form of bullion in the Manual of Coins (page 153); the fourth, *lumps and grains* (not *dust*) is the principal, almost the only condition, of California gold in the market.

Those grains appear in every variety of form and size, from the shapeless lump to the beautiful oval spangle; from the weight of several pounds, to the fraction of a grain; though none are so comminuted as the fine particles of African or Colombian dust. The largest lump exhibited here was that brought by Lieutenant Beale, weighing 81 ounces, and worth fifteen hundred dollars; though we have reliable information of a still larger, which was purchased by the British consul at San Francisco. The amorphous lumps are understood to be from the “dry diggings;” the flat spangles, and larger laminations, which show the action of running water in the rounding of their corners, are from the beds or margins of mountain streams, discharging into the two main rivers Sacramento and San Joaquin.

As it respects any characteristic difference in the *fineness* of the gold, of different locations (a very important inquiry), we have to say, that having tried samples from various sections of the gold region, selected and marked with that view, we are unable to find any such difference. As a general rule, the flat spangles of the rivers are better than the average of other grains, perhaps as much as one per cent.; while the large lumps appear to be higher, generally, than either; not invariably, because some lots of such lumps came out unexpectedly low. That of Lieutenant Beale was 921 thousandths fine; another, sent by Hon. Thomas Ewing, was 957. The extreme boundaries of fineness of all California gold, so far, are 826 to 957; but these are so wide of the customary

limits, that dealers need not fear the one, nor hope for the other. The usual range is from 875 to 905; the average is 885 to 890. These figures refer of course to the gold after melting. In that operation there is an average loss of $2\frac{1}{2}$ per cent., owing mainly to the presence of the oxide of iron which covers and penetrates every grain. If the gold grains should be dampened, or saturated with water, as is frequently their condition on opening at the Mint, the loss in melting may reach to 4 per cent. But assuming the grains to be dry, it results from the above data that the gold is worth, at mint rates, from \$17 63 to \$18 23 per ounce, and on the average from \$17 84 to \$17 94, not counting the silver contained. Bar-gold, having already sustained its loss in melting, is of course worth $2\frac{1}{2}$ per cent. more. When the gold is presented in sufficient quantity, the increase from silver parted will be about ten cents per ounce. The following will be a guide to determine what is the requisite quantity; useful to depositors from North Carolina, and New Granada, as well as California, who wish to save their silver.

Gold 850 fine, minimum weight 35 ounces.

| | |
|-----|-----|
| 860 | 38 |
| 870 | 43 |
| 880 | 48 |
| 890 | 55 |
| 900 | 73 |
| 905 | 81 |
| 915 | 104 |

(The weight is after melting.)

In the printed report already mentioned, it was stated as our impression at that time, in reference to *platinum* accompanying California gold, that it existed in but small relative quantity. This is still found to be true; in a single instance, however, it was present in sufficient quantity to reduce the fineness, even below the limit given. In such case it does not alloy uniformly, but appears in specks or clots through the mass of metal. The amount of platinum in the case mentioned, was 47 parts per thousand.

The alloy of the gold ordinarily, is wholly

silver, with a little iron. It is the coating of the oxide of iron which gives the gold its rich hue, almost resembling that of fine gold. As that is removed in melting, the metal comes out so much paler than before, that persons unacquainted with the matter might suspect a wilful admixture of silver. The people of California understand this, from the comparison of bars and coins made there, with the native grains. We need not send coals to Newcastle; but on our side of the Union, small samples will be interesting.

V. RECAPITULATION OF THE NET MINT VALUE OF GOLD AND SILVER COINS, ISSUED WITHIN TWENTY-FIVE YEARS PAST.

N.B. Inquiry has been frequently made at the Mint for a compend of the values of foreign coins, without a due consideration of the difficulty of putting in a small space such a statement as would be satisfactory. The quarto volume, to which this is supplementary, was not found too large for its purpose, which was to supply such information as dealers, amateurs, and legislators, would from time to time be likely to require. Still, a condensed table of the coins more usually seen, and within a contracted range of date, would certainly be useful to dealers and others, and especially with the modifications occasioned by the new mint tariff of charges. We therefore offer the following, inserting values only, and leaving the details of legal weight and fineness, and of actual weight and fineness, to be sought for in the larger work; as also the particulars concerning coinage of older date than just specified.

GOLD COINS.

| | D. C. M. |
|--|----------|
| AUSTRIA. Quadruple ducat, - - - | 9 12 |
| Ducat, - - - | 2 27 5 |
| Sovereign (for Lombardy), - - - | 6 75 |
| BADEN. Five Gulden, - - - | 2 04 |
| BAVARIA. Ducat, - - - | 2 27 |
| BELGIUM. Twenty-franc piece, - - - | 3 83 2 |
| Twenty-five, " - - - | 4 72 |
| BOLIVIA. Doubloon, - - - | 15 58 |
| BRAZIL. Piece of 6400 reis, - - - | 8 72 |
| BRITAIN. Sovereign, - - - | 4 84 5 |
| BRUNSWICK. Ten-thaler, - - - | 7 89 |
| CENTRAL AMERICA. Doubloon, - - - | 14 96 |
| Escudo, - - - | 1 67 |
| Gold dollar, - - - | 83 5 |
| CHILI. Doubloon, (before 1835), - - - | 15 57 |
| " (1835 and since), - - - | 15 66 |
| DENMARK. Double Frederick, or Ten-thaler, - - - | 7 88 |
| ECUADOR. Half-doubloon, - - - | 7 60 |
| EGYPT. Hundred piastres, - - - | 4 97 |
| FRANCE. Twenty francs, - - - | 3 85 |
| GREECE. Twenty drachms, - - - | 3 45 |
| HANOVER. Ten-thaler, George IV., - - - | 7 84 |
| Do. William IV. and Ernest, - - - | 7 89 |
| HINDUSTAN. Mohur, E. I. Company, - - - | 7 10 |
| MECKLENBURG. Ten-thaler, - - - | 7 89 |
| MEXICO. Doubloon, average - - - | 15 53 |
| NETHERLANDS. Ducat, - - - | 2 26 5 |
| Ten guilders, - - - | 4 00 7 |
| NEW GRANADA. Doubloon, 21 carat standard, - - - | 15 61 |
| Do. including the silver, - - - | 15 71 |
| Do. nine-tenths standard, - - - | 15 31 |
| Do. including the silver, - - - | 15 38 |
| PERSIA. Tomaun, - - - | 2 23 |
| PERU. Doubloon, Lima, to 1833, - - - | 15 55 |
| Do. Cuzco, to 1833, - - - | 15 62 |
| Do. do. 1837, - - - | 15 53 |
| PORTUGAL. Half-joe (full weight), - - - | 8 65 |
| Crown, - - - | 5 81 |
| PRUSSIA. Double Frederick, - - - | 8 00 |
| ROME. Ten seudi, - - - | 10 37 |
| RUSSIA. Five roubles, - - - | 3 96 7 |
| SARDINIA. Twenty lire, - - - | 3 84 5 |
| SAXONY. Ten-thaler, - - - | 7 94 |
| Ducat, - - - | 2 26 |
| SPAIN. Pistole, ($\frac{1}{4}$ doubloon), - - - | 3 90 5 |
| TURKEY. Hundred piastres, - - - | 4 37 4 |
| Twenty piastres (new), - - - | 82 |
| TUSCANY. Sequin, - - - | 2 30 |
| UNITED STATES. Eagle (before June, 1834), - - - | 10 62 |
| Five-dollar piece of C. Bechtler, - - - | |
| average, - - - | 4 85 |
| Dollar of the same, average, - - - | 96 |

D. C. M.

| | |
|--|--------------|
| UNITED STATES. Five-dollar piece of A. Bechtler, - - - | 4 92 to 5 00 |
| Dollar of the same, - - - | 98 |
| Oregon Exch. Co. Five dollars, - - - | 4 82 |
| N. G. and N., San Fr., do., - - - | 4 83 to 4 95 |
| Miners' Bank, San Fr. Ten dollars, - - - | 9 66 to 9 92 |
| Moffat & Co. do. Ten-dollars, - - - | 9 78 to 9 98 |
| Do. Sixteen-dollar ingots, about - - - | 15 75 |

SILVER COINS.

| | D. C. M. |
|---|----------|
| AUSTRIA. Rix dollar, - - - | 97 |
| Florin, - - - | 48 5 |
| Twenty kreutzers, - - - | 16 |
| Lira (for Lombardy), - - - | 16 |
| BADEN. Crown, - - - | 1 07 |
| Gulden or florin, - - - | 39 5 |
| BAVARIA. Crown, - - - | 1 06 5 |
| Florin, - - - | 39 5 |
| Six kreutzers, - - - | 03 |
| BELGIUM. Five francs, - - - | 93 |
| Two and a half francs, - - - | 46 5 |
| Two francs, - - - | 37 |
| Franc, - - - | 18 5 |
| BOLIVIA. Dollar, - - - | 1 00 6 |
| Half-dollar debased, 1830, - - - | 37 5 |
| Quarter do. do. do. - - - | 18 7 |
| BRAZIL. Twelve hundred reis, - - - | 99 2 |
| Eight do. do. - - - | 66 |
| Four do. do. - - - | 33 |
| BREMEN. Thirty-six grote, - - - | 35 6 |
| BRITAIN. Half-crown, - - - | 54 |
| Shilling, - - - | 21 7 |
| Fourpence, - - - | 07 1 |
| BRUNSWICK. Thaler, - - - | 68 |
| CENTRAL AMERICA. Dollar. Uncertain; say - - - | 97 |
| CHILI. Dollar, - - - | 1 01 |
| Quarter-dollar, - - - | 22 4 |
| Eighth do. or real, - - - | 11 2 |
| DENMARK. Rigsbank daler, - - - | 52 3 |
| Specie do. - - - | 1 04 7 |
| Thirty-two skillings, - - - | 17 |
| ECUADOR. Quarter-dollar, - - - | 18 7 |
| EGYPT. Twenty piastres, - - - | 96 |
| FRANCE. Five francs, - - - | 93 2 |
| Franc, - - - | 18 5 |
| FRANKFORT. Florin, - - - | 39 5 |
| GREECE. Drachm, - - - | 16 5 |
| GUIANA. British. Guilder, - - - | 26 2 |
| HANOVER. Thaler, fine silver, - - - | 69 2 |

| | D. C. M. |
|--|----------|
| HANOVER. Thaler, 750 fine, - - - | 68 |
| HAYTI. Dollar, or 100 centimes, - - - | 25 7 |
| HESSE-CASSEL. Thaler, - - - | 67 5 |
| One-sixth thaler, - - - | 11 |
| HESSE-DARMSTADT. Florin or Gulden, - - - | 39 5 |
| HINDUSTAN. Rupee, - - - | 44 5 |
| MEXICO. Dollar, average, - - - | 1 00 7 |
| NAPLES. Scudo, - - - | 94 |
| NETHERLANDS. Three guilders, - - - | 1 20 |
| Guilder, - - - | 40 |
| Twenty-five cents, - - - | 09 5 |
| Two and a half guilders, - - - | 98 2 |
| NEW GRANADA. Dollar, usual weight, - - - | 1 02 |
| Do. lighter, and debased; 1839, - - - | 64 |
| NORWAY. Rigsdaler, - - - | 1 05 |
| PERSIA. Sahib-koran, - - - | 21 5 |
| PERU. Dollar, Lima mint, - - - | 1 00 6 |
| Dollar, Cuzco, - - - | 1 00 8 |
| Half-dollar, Cuzco, debased, - - - | 36 |
| Half-dollar, Arequipa, debased, - - - | 36 |
| Do. Pasco, - - - | 49 5 |
| POLAND. Zloty, - - - | 11 2 |
| PORTUGAL. Cruzado, - - - | 55 2 |
| Crown, of 1000 reis, - - - | 1 12 |
| Half do. - - - | 56 |
| PRUSSIA. Thaler, average, - - - | 68 |
| One-sixth, do. - - - | 11 |
| Double Thaler, or $3\frac{1}{2}$ Gulden, - - - | 1 39 |
| ROME. Scudo, - - - | 1 00 5 |
| Teston ($\frac{3}{8}$ scudo), - - - | 30 |
| RUSSIA. Rouble, - - - | 75 |
| Ten Zloty, - - - | 1 13 5 |
| Thirty copecks, - - - | 22 |
| SARDINIA. Five lire, - - - | 93 2 |
| SAXONY. Species-thaler, - - - | 96 |
| Thaler (XIV. F. M.), - - - | 68 |
| SIAM. Tical, - - - | 58 5 |
| SPAIN. Pistareen (4 reals vellon), - - - | 19 5 |
| SWEDEN. Species-daler, - - - | 1 04 2 |
| Half do. - - - | 52 |
| TURKEY. Twenty piastres, new coinage, - - - | 82 |
| TUSCANY. Leopoldone, - - - | 1 05 |
| Florin, - - - | 26 2 |
| WURTEMBERG. Gulden, 1824, - - - | 38 5 |
| Do. 1838, and since, - - - | 39 5 |
| Double Thaler, or $3\frac{1}{2}$ Gulden, - - - | 1 39 |

VI. SILVER FROM LAKE SUPERIOR.

Scarcely any discovery of late date has better deserved the attention of men of science, than that of silver occurring in the copper mines of Lake Superior. Hitherto it has been produced

in but small quantity; possibly the finding of a rich *pocket* may yet command the respect of business-men. The silver is in the native or metallic state, and appears in grains or lumps, firmly attached, or as it were *welded*, to the copper; and yet the two metals are not at all intermingled or alloyed. Deducting a small proportion of mere earthy matter, the silver is pure, not even containing gold; and the copper is pure also. We are not aware that silver has ever been found, elsewhere, in this most curious position.

Three deposits of this silver have already been made at the Mint. One had been previously melted and cast into bars, and consequently its character was gone, though not its value. The second was a large, wide-spreading *cake*, smoothed somewhat by the action of water; it was found by assay to contain 95 per cent. unalloyed silver, and 5 per cent. earthy matter. The value of it was \$119. This has been retained in the collection of the Mint, and forms one of its greatest curiosities. The third deposit, brought very recently, and emanating from the Pittsburg Company, consisted of grains or lumps, varying in weight from one grain to four pennyweights (say a quarter of a cent to a quarter of a dollar); they had been detached from the copper, and so effectually that very little of that metal remained. The amount of dirt removed by melting was about two per cent.; the remainder showed a fineness of 962 thousandths. The whole weight was about 238 ounces; and the value, \$290.

VII. TABLE OF CORRESPONDENCE BETWEEN PENNYWEIGHTS AND GRAINS, AND THE HUNDREDTHS OF A TROY OUNCE.

Gold and silver bullion, and coins in quantity, are weighed at the United States Mint and its Branches, by ounces and hundredths, rejecting the usual division into pennyweights and grains. It were much to be wished that this easy decimal system were brought into general use. Probably that wish will ere long be realized; but in the

mean time, it is desirable for dealers and depositors to have a ready means of knowing the equivalents in the two methods of weighing; and the ensuing table is inserted for that purpose.

| Decimals of an ounce. | Dwts. | Grs. | Decimals of an ounce. | Dwts. | Grs. | Decimals of an ounce. | Dwts. | Grs. |
|-----------------------------|-------|------|-----------------------------|-------|------|-----------------------------|-------|------|
| ·01 | 0 | 5 | ·34 | 6 | 19 | ·67 | 13 | 10 |
| ·02 | 0 | 10 | ·35 | 7 | 0 | ·68 | 13 | 14 |
| ·03 | 0 | 14 | ·36 | 7 | 5 | ·69 | 13 | 19 |
| ·04 | 0 | 19 | ·37 | 7 | 10 | ·70 | 14 | 0 |
| ·05 | 1 | 0 | ·38 | 7 | 14 | ·71 | 14 | 5 |
| ·06 | 1 | 5 | ·39 | 7 | 19 | ·72 | 14 | 10 |
| ·07 | 1 | 10 | ·40 | 8 | 0 | ·73 | 14 | 14 |
| ·08 | 1 | 14 | ·41 | 8 | 5 | ·74 | 14 | 19 |
| ·09 | 1 | 19 | ·42 | 8 | 10 | ·75 | 15 | 0 |
| ·10 | 2 | 0 | ·43 | 8 | 14 | ·76 | 15 | 5 |
| ·11 | 2 | 5 | ·44 | 8 | 19 | ·77 | 15 | 10 |
| ·12 | 2 | 10 | ·45 | 9 | 0 | ·78 | 15 | 14 |
| ·13 | 2 | 14 | ·46 | 9 | 5 | ·79 | 15 | 19 |
| ·14 | 2 | 19 | ·47 | 9 | 10 | ·80 | 16 | 0 |
| ·15 | 3 | 0 | ·48 | 9 | 14 | ·81 | 16 | 5 |
| ·16 | 3 | 5 | ·49 | 9 | 19 | ·82 | 16 | 10 |
| ·17 | 3 | 10 | ·50 | 10 | 0 | ·83 | 16 | 14 |
| ·18 | 3 | 14 | ·51 | 10 | 5 | ·84 | 16 | 19 |
| ·19 | 3 | 19 | ·52 | 10 | 10 | ·85 | 17 | 0 |
| ·20 | 4 | 0 | ·53 | 10 | 14 | ·86 | 17 | 5 |
| ·21 | 4 | 5 | ·54 | 10 | 19 | ·87 | 17 | 10 |
| ·22 | 4 | 10 | ·55 | 11 | 0 | ·88 | 17 | 14 |
| ·23 | 4 | 14 | ·56 | 11 | 5 | ·89 | 17 | 19 |
| ·24 | 4 | 19 | ·57 | 11 | 10 | ·90 | 18 | 0 |
| ·25 | 5 | 0 | ·58 | 11 | 14 | ·91 | 18 | 5 |
| ·26 | 5 | 5 | ·59 | 11 | 19 | ·92 | 18 | 10 |
| ·27 | 5 | 10 | ·60 | 12 | 0 | ·93 | 18 | 14 |
| ·28 | 5 | 14 | ·61 | 12 | 5 | ·94 | 18 | 19 |
| ·29 | 5 | 19 | ·62 | 12 | 10 | ·95 | 19 | 0 |
| ·30 | 6 | 0 | ·63 | 12 | 14 | ·96 | 19 | 5 |
| ·31 | 6 | 5 | ·64 | 12 | 19 | ·97 | 19 | 10 |
| ·32 | 6 | 10 | ·65 | 13 | 0 | ·98 | 19 | 14 |
| ·33 | 6 | 14 | ·66 | 13 | 5 | ·99 | 19 | 19 |

VIII. COMPARISON OF AMERICAN AND FOREIGN WEIGHTS, USED FOR PRECIOUS METALS.

The normal weight of this Mint is the troy ounce, for considerable quantities; and the troy grain, for single coins.

This ounce is equal to 480 grains; to 31·09815 French grammes; to 1·08108 Spanish ounces.

The grain is 64·788 milligrammes.

Our standard French kilogramme weighs 15,435 grains; or 32·15625 ounces.

The gramme is 15·435 grains.

The milligramme, ·0154 gr.

The average estimate of the Spanish mark, is

3552 troy grains; or 7·40 ounces, troy. This mark is divided into eight ounces; one of which consequently, equals 0·925 troy ounce.

The Castellano, a Spanish weight for gold only, is one-fiftieth of the mark, and therefore should equal 71·04 troy grains. By an invoice from New Granada, we found it to be 70·935; so that 71 grains might be taken as the equivalent, accurate enough in practice.

The Cologne mark, normal money-weight of Germany, by the German Convention of 1838, was estimated at 233·855 grammes, answering to 3609·55 grains troy. It was before rated usually at 3609.

Our silver dollar, since 1837, weighs 26·725 grammes.

A kilogramme of standard ($\frac{2}{10}$) gold, is worth \$598 25·5.

IX. BULK AND PACKING OF PRECIOUS METALS.

A solid or cubic inch of fine gold weighs 10·1509 ounces, and is worth \$209 84.

A cubic foot of the same, \$362,600.

A cubic inch of standard gold weighs 9·0989 ounces, and is worth \$169 28.

A cubic foot of the same, \$292,500.

A cubic inch of fine silver weighs 5·5225 ounces, and is worth \$7 14.

A cubic foot of the same, \$12,338.

A cubic inch of standard silver weighs 5·4173 ounces, and is worth \$6 30·3.

A cubic foot of the same, \$10,891·*

Gold is not measured by the *pint*, at least not out of California; yet it may be interesting to know, that a dry-measure pint of California

* The above calculations are based upon the weight of water as 252·458 grains to the cubic inch, the thermometer being at 60° and the barometer 30 inches; (Silliman's First Princ. Chem., 1848.) The specific gravity of fine gold is taken at 19·3, standard at 17·3; fine silver 10·5, standard 10·3. As these gravities are only approximate, we may be excused for not carrying out the decimals very far, as is rather too often done in works of science.

grains is found to weigh from 141 to 143½ ounces; value about \$2560. The average specific gravity is consequently 9.61; so that it occupies about twice as much bulk, in that form, as when melted and cast into bars. A pint of African dust was found to weigh 148 ounces.

The advantage of having gold grains or dust cast into bars, as a preparative for exportation, is perhaps overrated. True, it has rather an insufficient outfit, if packed in paper, leather,* muslin, Seidlitz-boxes, or porter-bottles, as it comes from San Francisco. A good tin box, well soldered, will hold fast and keep dry; and the mint charges nothing for melting. This is the most general kind of packing now used; but the tin case, if large, requires to be enclosed in a wooden box, and after that, there is need of a vigilant watch and care. A most daring theft was lately committed, somewhere on the route, by boring through both box and case; and about \$9000 worth was abstracted.

A keg, 13½ inches high including the chine, and with a diameter of 10 inches at the head, and 11½ at the bilge (outside measures), is a convenient size for \$2000 in silver coin, or \$50,000 in gold coin.

A keg whose measurements are 19, 11, 13, as above, is a proper size for \$5000 in silver coin.

A rectangular box, measuring inside 10 by 8 by 5, is the size used at the Mint for \$1000 in silver coin. This allows the coin to be thrown in promiscuously; if piled, at least one-third more can be put in. Such a box would hold \$36,000 in gold coin, laid in order; or \$27,000 in disorder.

A bag six inches by nine, holds \$5000 in gold coin, with room to tie.

A bag 14 by 18, is a good size for \$1000 in silver coin.

* Material for packing, in California, seems as dear as it is promiscuous. A leather bag, not too large for a mitten, was set down in a late invoice at *eight dollars*.

X. DETERMINATION OF THE VALUE OF A SPECIMEN OF GOLD OR SILVER IN ITS NATIVE ROCK, OR GANGUE.

That which is as old as Archimedes, may yet be new to some, that a specimen of gold, or silver, as it comes from its natural bed, intermingled with stone, and often more prized for its beauty, or as a keepsake, than the metal would be in a more condensed and marketable shape, can be accurately enough valued, without being broken up or spoiled. The specific gravity of the lump being determined, and that of the metal and the matrix being known, the problem is solved by a direct calculation. The formula is inserted here, as being a suitable and convenient place for it.

| | |
|---------|---------------------------------|
| Let a | represent sp. gr. of the metal, |
| b | do. of the stone. |
| c | do. of the lump. |
| w | weight of the lump. |
| x | do. of the gold. |
| y | do. of the stone. |

$$\text{Then. } x = \frac{a(c-b)}{c(a-b)} w,$$

$$\text{and } y = \frac{b(a-c)}{c(a-b)} w.$$

The sp. gr. of the rock, say limestone or ferruginous quartz, may be assumed as 2.6; that of silver, 10.5; that of gold, according to its assay, or usual fineness of that from the region whence it comes; for which see tables of sp. gr. in the large Manual, pages 182-4.

The accuracy of the resulting figures has been repeatedly proved here by extracting the precious metal,—a fact of some interest, as all experimenters will confess. Thus a lump of North Carolina gold in quartz, which by the above formula indicated 12.69 ounces, actually yielded 12.67; a difference of only 39 cents in 277 dollars. Again, a gold pebble from California, belonging to Hon. Thomas Ewing, weighing 3.97 ounces, gave by specific gravities 2.47 ounces of gold; and by melting, 2.45 ounces; error of 39 cents in \$48.

XI. PROMPT PAYMENTS AT THE MINT.

It is important to depositors of bullion at the Mint to know how soon they can receive their returns in coin. A brief explanation, as to what was formerly, and what is now, the usage of the Mint, will conclude the present treatise.

During the whole existence of the institution, down to the beginning of 1837, depositors were obliged to await the coining of their bullion in turn. This natural course, which was as good as any one had a right to expect, especially as the coinage is effected free of charge, produced a delay, which was considered equivalent to a loss of one-half of one per cent., judging by the rate

at which mint certificates were bought up by banks and brokers. But as this order caused a considerable complication of accounts, and as it was judged that dormant funds in the Treasury of the United States might to a moderate extent be used for payment of bullion, and so enable the depositor to receive his coin promptly, the Director of the Mint, Dr. Patterson, made a successful representation of that matter to the Head of Department, and funds were placed in the Treasury of the Mint for that purpose. Ever since 1837, therefore, with an interruption of less than six months in 1849, from which the Mint has recovered, and which is not likely to recur, deposits have been paid in full, as soon as the assay has determined their value; ordinarily within a few days after the bullion is presented.



THE MORMON COINS

Have just been received, through a gentleman who came overland from Great Salt Lake in eighty-one days. They consist of 20, 10, 5, and $2\frac{1}{2}$ dollar pieces. In fineness they are about 899 thous., with little variation; and they contain only the native silver alloy. The weights are more irregular, and the values very deficient. The 20 dollar piece weighs from 436 to 453 grains, value \$16 90 to \$17 53. The 10 dollar, 219 to 224 grains, \$8 50 to \$8 70. The 5 dollar, about 111 grains, \$4 30. The $2\frac{1}{2}$ dollar, about 58 grains, \$2 25.

On one side of the coins is HOLINESS TO THE LORD, with a large eye, and something like a mitre; on the other, two hands in friendly grasp, with the date 1849, and a legend containing the alleged value, and the initials G. S. L. C. P. G., meaning GREAT SALT LAKE CITY. PURE GOLD. The ten dollar piece has PURE GOLD, in full.

January 10



